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### Ethnomedicinal plants and their utilization by villagers in Koppal district of Karnataka

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#### Abstract

The present paper reports the collection and identification of various medicinal plants grown in Koppal district of Karnataka which falls under Northern Dry Zone of Karnataka. Paddy is the major crop of this region and main source of irrigation is Tungabhadra canal. Different medicinal plants available in this region and their usage by traditional healers are tabulated according to their major use. Since the use of plant material with medicinal potential represent a valid alternative for treatment of diseases, documentation of valuable ethno medicinal practices become essential. This would contribute to body of knowledge and help in exploration of new and novel bioactive compounds to fight against diseases.

**Keywords:** ethno medicine, medicinal plants, diseases, koppal, karnataka

#### Introduction

Ethno botanical studies of Medicinal Plants relate the particular society with the environment, particularly to plants. It indicates and explores the indigenous knowledge of traditional people and their way of utilization of these plants for food, shelter, medicine, clothing hunting and religious ceremonies. (Aumeeruddy, 1996) [1]. Plants with medicinal properties have been used in traditional medicine since thousands of years. Ancient literatures indicate that therapeutic use of plants in the world is as old as 4000–5000 B.C. and Chinese were the first to utilize herbal medicines. In India, however earliest references of use of plants as medicine appear in Rigveda which is said to be written between 3500–1600 B.C. Later the properties and therapeutic uses of medicinal plants were studied in detail and recorded empirically by the ancient physicians with their literatures like Charaka Samhita and Sushruta Samhita in Ayurveda which is a basic foundation of ancient medical science in India (Sirkar, 1989) [10]. In India, it is reported that traditional healers use 2500 plant species and 100 species of plants serve as regular sources of medicine (Pei, 2001) [8]. India with two hot-spots of biodiversity in the Northeastern Region and Western Ghats inhabit about 315 families of plants out of 400 families found in the world (Sharma, 2003) [9].

In today's world, with the trend of coming back to nature it is appreciable that people are diverting towards traditional systems of medicines which use plants as their major source of treatment. Now people are aware of the fact that traditionally used medicinal plants produce a variety of secondary metabolites of known therapeutic properties which are safer and exhibit remarkable efficacy in the treatment of various ailments. (Iyengar, 1985; Chopra *et al.*, 1992; Harborne and Boxtor, 1995) [4, 2, 3].

So in this context, our attention goes to traditional knowledge of ancient people who use to depend on plants for their treatments – they are so called traditional healers. These medicinal plants not only fed the demand of traditional healers but also are acting as a source for rapidly growing pharmaceutical and cosmetic industries.

The main objective of present paper is to assess the importance and usage of these medicinal plants by our traditional healers of Koppal Dist and documenting indigenous knowledge through ethno botanical studies is important for the conservation of biological resources.

#### Description of Study site

Koppal Dist lies between 15.35° N and 76° 15 E latitude and longitude. The Dist is having an

Area of 5570 square km with population of 13, 89, 920 with population density of 250 people /Sq.kms. It comes under Northern Dry Zone of Karnataka with average rainfall of 587 mm and temperature and 29 °C to 42 °C. Soil type available is partly red sandy and black type.

### Materials and Methods

Periodic field trips for ethno botanical exploration were undertaken during the year 2016 and 2017 in prominent villages in and around Koppal Dist. Particularly villages of Gangavati Taluk, Kushtagi Ta and Kumaraswami hills of Snadur Ta. During the surveys personal interviews were conducted with the village dwellers, the herbal medicine practitioners and other traditional healers. Each of the plant material was documented as to family, scientific name, vernacular name (Kannada), part used and medicinal uses, plant parts that were identified as having use in ethno botany were collected.

The information on medicinal uses of the aboriginal pats have been described after gathering information from experienced rural folk, traditional herbal practitioners who were having the knowledge of healing. A total of 26 selected inhabitants were interviewed who were in the age range of 40 years and 75 years. In addition to this direct field visits were made to collect data on knowledge and management of medicinal plants with the help of local healers.

Information on local names of plants, plant part used for curing the disease, their recipes and their mode of administration were recorded. Traditional healers belonging to

this study area frequently use drugs prepared from medicinal plants found in the area and also extensive knowledge about medicinal herbs which they gathered during their trips to the forests to collect the drugs and while roaming from one place to another place they dispense their therapeutic knowledge to their customers.

### Results and Discussion

The present observation and interaction with the village dwellers, the herbal medicine practitioners and other traditional healers the following findings were made.

### Enumeration

The plant species are arranged in alphabetical order. Each plant is followed by its family, vernacular name (Kannada). The medicinal uses are described with details such as the part(s) used singly, combination with other ingredients or mixed with other plants, methods of preparation and mode of administration. Similar studies were conducted in different parts of Karnataka. (M J Bhandary and K R Chandrashekhara, 2011., M Parinitha *et al.*, 2004; N S Harihar and K Kotresha., 2012. and S R Ghatapanadi, *et al.*, 2011) [5, 6, 7, 8, 9]

### Major findings

A collective data of important traditional medicinal plants used throughout Koppal dist are documented below, with respect to various ailments. The method of use of medicine is also given in the Table.

**Table:** Different ailments and their treatment by medicinal plants of Karnataka

Sl. No	Ailment	Medicinal Plant used	Common Name	Method
1	Cough	<i>Piper nigrum</i> , Piperaceae	Menasu	Fruits boiled with water
		<i>Cassi ariculata</i> , cesalpiniaceae	Tangadi/Avarike	Stem pieces with leaves of <i>Michelia champaka</i> + <i>Piper nigrum</i> and <i>Emblia ribes</i>
		<i>Adathoda vasica</i> , Acanthaceae	Adusoge	Leaf extract with ginger paste mixed with honey
		<i>Leucas aspera</i> , Lamiaceae	Gadde tumbe	Leaf extract
		<i>Acacia latronum</i> Mimosaceae	Hodijaali	The fruit powder (4-5g) given with Cup of water (50-60ml) orally, twice in a day for about 4-5 days.
2	Fever and throat irritation	<i>Vitex nigundo</i> , Verbenaceae	Lakki/ bili lakki	whole plant is burnt and fumes from charcoal are inhaled
		<i>Alstonia scolaris</i> , Apocynaceae	Maddane	Bark juice +Rice washed water taken orally for two days
		<i>Adathoda xylanica</i> , Acanthaceae	Adusoge	Leaves and flowers mixed with milk and used as drink
		<i>jasminum sambac</i> , oleaceae	Mallige	Leaf extract taken with milk
3	Skin problems	<i>Jatropa curcas</i> , Euphorbiaceae	haralu	Stem decoction is applied on skin
		<i>Pterocarpus santalinus</i> , Papillionaceae	Rakta chandana	Stem bark powder or paste
		<i>Santalum album</i> , santalaceae	Shrigandha	Stem bark powder or paste
		<i>Ocimum sanctum</i> , Labitae	Tulsi	Leaf extract with honey
		<i>Vitex nigundo</i> , Verbenaceae	Lakki/ bili lakki	Tender leaves along with cumin, <i>adathoda vasica</i> , clove and <i>Myristica</i> nuts boiled in coconut oil
		<i>Calotropis procera</i> , Asclepidaceae	Ekke	Paste of flower made with castor oil and turmeric powder applied externally
4	Bone fracture	Aloe vera (L.)	Lolesara	Extract of the leaves used
		<i>Cissus quadrangularis</i> , Vitaceae	Mangarvalli	Plant mucilage applied over fracture
		<i>Vitex nigundo</i>	neergundi	leaf paste in goat milk
		<i>Holorrhena antidysenterica</i> , Apocynaceae	Kodasinge/halukodasu	powder of bark and leaves taken with milk, bark paste applied externally
		<i>Azadirachta indica</i>	bevu	bark is used
5	Jaundice	<i>Cadaba fruticosa</i>	Sihiguduchi	plant powder
		<i>Phyllanthus emblica</i> , Euphorbiaceae	Nelaneli	whole herb crushed with butter milk
		<i>Balanitis roxburghii</i> , Simarubaceae	Ingudi	Tender leaf extract with milk or fruit pulp with jaggery
		<i>Tinospora cardifolia</i>	Amrutha balli	Leaf and root decoction
		<i>Lawsonia inermis</i> , Lytheraceae	madarangi	Filtrate of fresh leaves kept overnight in water taken in morning
		<i>Lucas aspera</i> ,	thumbe	fresh leaf juice
6	Diabetes	<i>centella aseatica</i> , Apiaceae	Ondelaga	leaves mixed with cumin seeds, sugar candy, along, dry grape, kaskas dates with coconut milk
		<i>Catheranthus roseus</i> , apocynaceae	Sada pushpa, Nityapushpa	Leaf extract
		<i>Wihania somnifera</i> , Apocynaceae	Ashwagandha	root powder with water
		<i>Ichnocarpus afrutescence</i> , Apocynaceae	Syamalatha	Root powder with milk
		<i>Bauhenia variagata</i>		Bark

		<i>Emblica officinalis</i>	Nelli	fruit
		<i>Ficus bengalensis</i>	Aala	bark infusion
		<i>Gymnema sylvestre</i>	Karjagenballi	whole plant powder with <i>Andrographis paniculata</i> and cassia
		<i>casia ariculata, Fabaceae</i>		decoction of leaves
7	Infertility	<i>Achyranthus aspera, Amaranthaceae</i>	Uttrani	Inflorescence paste is mixed with buffalo milk
		<i>Asperagus recemosus, liliaceae</i>	shatavari	roots + ashwagandha roots powder taken in Morning
		<i>Boerrhaavia diffusa, Nyctaginaceae</i>	Punarnuva/ kometegida	root powder with honey
		<i>Ficus religiosa, Moraceae</i>	Arali mara, Ashwath	equal part of dried fruit and lotus seed powder along with milk
		<i>Pergularia daemia Asclepidaceae</i>	Kurudigana balli	Dried leaves, Cloves, pepper and handful of red jowar powder
		<i>Bryonopsis laciniosa, Cucurbitaceae</i>		Dried seeds froed in ghee ground in to powder with water and milk
8	Rernal kalkuli / Kidny stones	<i>Coleus aromaticus, Lamiaceae</i>	Dodda patre	Leaf paste eaten daily
		<i>Lawsonia inermis, Lytheraceae</i>	Goranti/henna	Stem bark decoction
		<i>Saraca asoca, Fabaceae</i>	ashoka	Seed powder with honey
		<i>Tinospora cardifolia, Meninspermaceae</i>	Amruth balli	Stem powder+ <i>Tribulus terrestris</i> fruit <i>phyllanthus emblica</i> fruits
		<i>Tridex procumbensis, Asteraceae</i>	Tikki kasa	Leaf extract taken orally
		<i>Vitex nigundo, Verbenaceae</i>	Lakki gida	Root powder in empty stomach
		<i>Asperagus racemosus, liliaceae</i>	shatavari	root powder mixed with cows butter milk taken orally for one week
9	Asthema	<i>Mangifera indica L.</i>	maavu	seeds are used
		<i>Acalypha indica,</i>		Plant extract in the morning
		<i>Datura metel, Solanaceae</i>	Datura	Leaves and shade dried flowers smoked
		<i>Tylophora asthematica</i>	Adu muttada balli	Fresh leaves are eaten daily
		<i>Tridex procumbense</i>	tikki kasa	leaf juice
		<i>Abrus precatorious, Fabaceae</i>	gulaganji	seeds are used
		<i>Adathoda vasica, Acanthaceae</i>	Adusoge	leaf decoction
		<i>Solanum trilobatum</i>	Mullu sondi	plant powder paste
11	Tonic	<i>Asperagus recemosu, Liliaceae</i>	shatavari	tuber infusion given to children for god health
12	Blood pressure	<i>Catheranthus roseus, apocynaceae</i>	Sada pushpa, Nityapushpa	Leaf extract
		<i>Aegle marmelose, Rutaceae</i>	Bilva patri	Tonic prepared out of fruits
13	Maleria	<i>Azadirachta indica, Meliaceae</i>	Bevinamara	Leaf juice
		<i>Cyprus rotundus, Poaceae</i>	jeku	tubers

## Conclusion

The study indicates that traditional medicinal plants of Karnataka have a high potential to treat a wide spectrum of ailments. It is evident from the interview was conducted in different villages; knowledge of medicinal plants is limited to traditional healers, herbalists and elderly persons who are living in rural areas. This study also points out that certain species of medicinal plants are being exploited by the local residents who are unaware of the importance of medicinal plants in the ecosystem. The investigations concluded that even though the accessibility of Western medicine for complicated and simple diseases is available, many people still depend on medicinal plants at least for the treatment of some simple diseases such as cold, cough, fever, headache, poison bite, skin diseases and tooth infections. Moreover traditional approaches of combination therapy deserves appreciation also because studies have shown that the modern approaches of continued treatment of diseases with single compounds may result in development of mutants resistant to single drug.

Thus it becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens. It is hoped that documentation of such information will play an important role in framing health policies for people in general and for those living in tribal dominated regions in particular.

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