



## ETHNO-BOTANICAL SURVEY OF MEDICINAL PLANTS IN SEMI-MALNAD AREA OF HASSAN DISTRICT, KARNATAKA

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**Abstract-** In the ethno-botanical survey of medicinal plants of Hassan district, about 93 sps, of naturally growing and frequently used medicinal plants were collected belonging to 48 families. Of which 31 sps. Trees, 18 sps. shrubs, 26 sps. herbs, and 18 sps. climbers. Among these population, *Costus speciosus* (Koem.ex.Retz) Sm., *Rauvolfia serpentina* (L.) Benth.ex Kurz., *Tinospora cordifolia* (Willd.) Miers. *Saraca asoca* (Roxb)de Wilde), *Adathoda zeylanica* Medic., *Cassia fistula* L. *Abrus precatorius* L. *Terminalia bellirica* (Gaerth). Roxb. etc., are reducing day-by-day due to over-exploitation for medicinal purposes by ethnic people, felling for timber, etc. During the exploration, emphasis was given on herbal treatment for everyday common ailments and diseases particularly used by the ethnic people of Hassan district such as Arakalagud, Holenarasipura, Alur and Hassan taluks. The study gives an account on the diversity and uses of medicinal plants and priority medicinal plants for conservation.

**Keywords-** Medicinalplants, Hassandistrict, Conservation, Ethnicpeople

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### Introduction

India has about 8 percent of the world's bio-diversity on two percent of the earth's surface area, making it one of the 12 mega-diversity countries of the world, due to the species richness and level of endemism recorded in the various agro climatic zones of the country. Medicinal plants as a group, comprise approximately 8,000 species and account for around 50 percent of the higher flowering plant species of India. Even today 75 percent of the world population in developing countries are dependent traditional medicine for their health care (Anthropological Survey of India, 1994). Most of the medicines are prepared and consumed locally using available plants (Biswal et al. 2003). It is estimated that nearly 4,600 ethnic communities are using more than 7,500 species of plants for human and veterinary health care in India. About 1,500 plants with medicinal uses are mentioned in the ancient texts and around 800 plants have been used in traditional medicine. Around 50,000 herbal drug formulations have been developed by traditional medicine systems.

Karnataka state is known for its rich biological diversity, although the natural ecosystems experience threat from recurrent natural calamities. Semi-malnad area of Hassan district, Karnataka is noted for its rich diversity of medicinal plants, apart from wetlands and flood plains serving the habitat requirement of several inhabitant communities. Since time immemorial, semi-malnad area has been the meeting ground of people belonging to different ethnic groups (Kuruba, Jenu kuruba, Bettakuruba, Kadukuruba, Mullukuruba, Urali kuruba, Lambani, Hakkibikki and Kurumba) are the tribals who are intimately associated with the study area. Most of them are kannada speaking hindu and few are muslim community. Most of the Semi-malnad area is used for coffee plantation and the principle crops produced in the plain areas are rice, ragi, sugarcane, potato, jowar, red gram, cardamom, etc. About 90% of the gross cropped area is used for cultivation of rice, potato and coffee plantation. The economy of Semi-malnad is predominated by agriculture and allied sectors. More than 60% of the total working population in semi-malnad area is either cultivators or agricultural

labourers. Home gardens and traditional agro forestry practices are very common and are characterized by their complex structure and multiple functions. Traditional home gardens are the closest mimics of natural forests and support diverse wildlife species besides meet in various social and basic daily life needs. Almost all families of rural areas have such practices. Most of the medicinal plants come from these traditionally managed home gardens and from natural habitat. These are the sites of conservation of a large diversity of plants both wild and domesticated. In the study, ethno botanical aspects semi-malnad area of Hassan district with a special emphasis on the herbal treatment of day-to-day ailments and diseases by different communities of semi-malnad have been documented.

### Study area

The study area of Hassan district occupies a western position in the state of Karnataka, and lies between 12°30' and 12°58' N and 75°33' and 76°56' E at an altitude of 945 m and its total geographical area is about 2538 sq km. representing about 37.24 % of the total geographical area of Hassan district with a population of 5.2 lakhs. The topography of the study area is comprised of the hilly and semi arid regions. It occupies eastern part of the western ghat and continuous into the gently rolling Deccan plateau. The district shows a wide range of climatic conditions with a mean daily minimum of 14°C and mean daily maximum of 27°C.

### Methodology

Standard methods were followed for the collection of plant materials, mounting, preparation and preservation of plant species. Voucher specimens were collected identified, by referring standard flora [6,7,13]. All the preserved specimens were deposited in the Department of Botany, AVK College for Women, Hassan, The forests are semi evergreen and deciduous type with undulating chain of hills. Local traditional healers having practical knowledge of medicinal plants either for self-medication or for treating others were often visiting the vegetation area of the district to collect plant species. A total of 47 health healers were identified between the ages of 40 and 80 for the survey.

The study was conducted in Arakalagud, Holenarasipura, Alur and Hassan taluks of Hassan district. Based on personal interviews between tribal and non-tribal peoples in normal discussion and observation using questionnaire during the visits. Ethno botanical data viz., local name, mode of preparation, medicinal uses were collected through questionnaire, interviews and discussions among the tribal and health practitioners in their local language. Our questionnaire allowed descriptive responses on the plant prescribed, such as part of the plant used, medicinal uses, mode of preparations like decoction, paste or powder etc. any other part of the country hail from this region. A few of them are *Sapindus emarginatus*, *Withania somnifera*, *Rauvolfia serpentina* etc. Enormous timber plants, medicinal plants and other economically important plants exist in this region as it is an admixture of Asiatic and peninsular Indian elements. Nevertheless, this great diversity and richness of flora is mainly due to its physical geography coupled with varied nature of rainfall, temperature and altitudes. Increasing biotic influences including socio-economic development, unrestricted commercial exploitation of forest wealth have threat-

ened the survival of the genetic resources amounting to a great loss of natural heritage, which is the rule of nature and the vegetation of any place is under constant modification, one type leading to the other. During this gradual process of evolution of flora, it is quite likely that certain species either get eliminated from the area or their ecological niche shrunk, whereby they have to struggle for their existence. Such species may be termed as threatened plants. It is observed that many interesting species are disappeared.

### Results and Discussion

Southwest India harbours about 70% of the total flora of India (25,000 species). Besides, a good number of primitive angiosperms not reported from poorly represented in their original localities either due to the disturbances of their habitats or excessive collection. If the current practices of human activities continue, even the unrecorded species of immense value will disappear. It is alarming, because a disappearing species can take with it 10-30 dependent species, such as insects, higher animals and other plants. In the study, 93 medicinal plants encountered belonging to 48 families from the different parts of the study area used by the local people and tribes in their daily ailments from various diseases (Table 1), 31 were trees, 18 shrubs, 26 herbs and 18 were climbers. Different parts of medicinal plant species were used for curing different diseases and mostly leaves were used followed by bark, fruit etc. From this collection, 14 medicinal plants belonging to 12 families are categorized as highly prioritized medicinal plants as they are of immense value in curing various diseases, but are in the low niche. Eventually, these species are now on the freeway towards extinction due to over exploitation, encroachment of habitats for the agricultural urbanization purposes. A few species regarded as endangered such as *Rauvolfia serpentina*, *Withania somnifera* and *Santalum album* that were also encountered.

Table 1-

Botanical names	Family	Part-used	Habit	Medicinal use
<i>Adhatoda zeylanica</i>	Acanthaceae	WP	S	Anthelmintic, Asthama, Anthelmintic
<i>Agave americana</i>	Agavaceae	Rt	S	Anthelmintic
<i>Achyranthes aspera</i>	Amaranthaceae	L.S.	H	Whooping cough, Blisters in mouth
<i>Amaranthus spinosus</i>	Amaranthaceae	WP	S	Expectorant, Laxative
<i>Alternanthera sessilis</i>	Amaranthaceae	WP	H	Galactagogue
<i>Alternanthera pungens</i>	Amaranthaceae	WP	H	Laxative
<i>Rauvolfia serpentina</i>	Apocynaceae	R	S	Snake bite, scorpion sting, high blood pressure
<i>Catharanthus roseus</i>	Apocynaceae	L,R	S	Astringent, anti-cancer drug
<i>Acorus calamus</i>	Araceae	St	H	Intoxicating
<i>Aristolochia indica</i>	Aristolochiaceae	WP	C	Fever, cough, snake bite
<i>Tylophora indica</i>	Asclepiadaceae	WP	S	Antidysentric
<i>Leptadenia reticulata</i>	Asclepiadaceae	WP	C	Stimulant
<i>Hemidesmus indicus</i>	Asclepiadaceae	R	C	Blood purifier, Skin disease

Table 1-Continue

Botanical names	Family	Part-used	Habit	Medicinal use
<i>Tridax procumbens</i>	Asteraceae	L	H	Bleeding, scorpion bite, head ache
<i>Basella alba var rubra</i>	Basellaceae	L	C	Antidote
<i>Opuntia dillenii</i>	Cactaceae	St	S	Stimulant, contraceptive
<i>Cassia fistula</i>	Caesalpiniaceae	L, Fr	T	Fe-ver, cadriac disease
<i>Cassia tora</i>	Caesalpiniaceae	L	S	Antiparalytic
<i>Saraca asoca</i>	Caesalpiniaceae	L	T	Inflammation, anaemia
<i>Cannabis Sativa</i>	Cannabinaceae	L	H	Digestive problems
<i>Carica papaya</i>	Caricaceae	F	T	Digestive
<i>Cochlospermum religiosum</i>	Cochlosperma-ceae	B	C	Hair tonic, cures ulcers
<i>Terminalia bellirica</i>	Combretaceae	B, F,	T	Antipyretic, laxative, antiparalytic
<i>Terminalia arjuna</i>	Combretaceae	B, F,	T	Hair growth, cardiac problems
<i>Terminalia catappa</i>	Combretaceae	F, S	T	Cardiac problem
<i>Terminalia chabula</i>	Combretaceae	Fr	T	Cold, cough, diabetes, asthma,
<i>Evolvulus alsinoides</i>	Convolvulaceae	L	H	Cough, cold, fever, asthma, jaundice
<i>Momordica Charantia</i>	Cucurbitaceae	WP	C	Anthelmintic, antipyretic,
<i>Costus speciosus</i>	Costaceae	L	H	Diabetes, sterilization
<i>Diospyros melanoxylon</i>	Ebenaceae	B, L	T	Leucorrhoea, carminative
<i>Phyllanthus acidus</i>	Euphorbiaceae	WP	H	Urinary disorder
<i>Phyllanthus emblica</i>	Euphorbiaceae	F	T	Bleeding nose, cough, asthma
<i>Phyllanthus niruri</i>	Euphorbiaceae	WP	H	Jaundice
<i>Jatropha curcas</i>	Euphorbiaceae	S	S	Purgative, anthelmintic
<i>Ricinus communis</i>	Euphorbiaceae	S	S	Purgative, anthelmintic
<i>Saropus androgynensis</i>	Euphorbiaceae	L	S	Mouth wound, blood purification
<i>Leucas aspera</i>	Lamiaceae	L	H	Laxative, stimulant, asthma, dyspepsia, Antiparalytic
<i>Coleus amboinicus</i>	Lamiaceae	WP	H	Antiseptic
<i>Ocimum sanctum</i>	Lamiaceae	L, F,	S	Stimulant, antispasmodic, diuretic, snakebite
<i>Mentha spicata</i>	Lamiaceae	L	H	Contraceptive, indigestion
<i>Ocimum basilicum</i>	Lamiaceae	L	S	Sinocytis, kidney stone
<i>Careya arborea</i>	Lecythidaceae	B, F	T	Astringent, demulcent, digestive
<i>Asparagus racemosus</i>	Liliaceae	R	H	Astringent
<i>Aloe vera</i>	Liliaceae	L	H	Memory, stomach problem
<i>Gloriosa superba</i>	Liliaceae	St	C	Abortion, rheumatism, gonorrhoea
<i>Hibiscus rosa-sinensis</i>	Malvaceae	F, Rt	S	Hair, tonic, jaundice, skin disease

Table 1-Continue

Botanical names	Family	Part-used	Habit	Medicinal use
<i>Azadirachta indica</i>	Meliaceae	Fr, Rt	T	Antipyretic, smallpox, leprosy, asthma, piles
<i>Tinospora cordifolia</i>	Menispermaceae	L	C	Heart disease, leprosy, chronic fever
<i>Acacia Concinna</i>	Mimosaceae	F, L,	L	Purgative, anthelmintic, digestive, antibilious, expectorant
<i>Albizzia amara</i>	Mimosaceae	B	T	Vulnerary
<i>Albizzia odoratissima</i>	Mimosaceae	B, L	T	Leprosy, antiphlegmatic
<i>Mimosa pudica</i>	Mimosaceae	Rt	H	Antiphlegmatic, antibilious, leprosy, antidysentric, antiphlogistic
<i>Ficus religiosa</i>	Moraceae	B, Rt, Fr	T	Astringent, asthma, antiphlogistic, purgative
<i>Ficus glomerata</i>	Moraceae	B	T	Restorative, leprosy, antibilious,
<i>Moringa oleifera</i>	Moringaceae	B, L, F	T	Anthelmintic, cephalgia, astringent, antiphlegmatic, antibilious
<i>Syzygium jambolana</i>	Myrtaceae	B, L	T	Astringent, anthelmintic, asthma, antibacillius, antidysentric,
<i>Boerhavia diffusa</i>	Nyctaginaceae	L, S	H	Insect bite, fever, Boils
<i>Oxalis corniculata</i>	Oxalidaceae	L, WP	H	Febrifuge, antidysentric, expectorant, diarrhoea
<i>Argemone mexicana</i>	Papaveraceae	WP	S	Scabbies, ophthalmia
<i>Clitoria ternatea</i>	Papilionaceae	L, F	C	Mental illness, liver problem, memory power
<i>Abrus precatorius</i>	Papilionaceae	L, F	C	Leprosy, antipyretic
<i>Butea monosperma</i>	Papilionaceae	St, Rt	T	Digestive, laxative, anthelmintic
<i>Pongamia pinnata</i>	Papilionaceae	S	T	Vulnerary, piles, constipation
<i>Piper longum</i>	Piperaceae	Fr	C	Cough, fever, hair loss
<i>Piper betle</i>	Piperaceae	L	C	Healing wounds, fever, cough
<i>Piper nigrum</i>	Piperaceae	F	C	Anthelmintic, carminative, purgative, antiperiodic
<i>Plumbago zeylanica</i>	Plumbaginaceae	Rt	S	Diuretic, piles, anaemia
<i>Plumbago rosea</i>	Plumbaginaceae	Rt	S	leprosy
<i>Cynodon dactylon</i>	Poaceae	Rt, L,	H	Urinary troubles
<i>Bambusa arundinacea</i>	Poaceae	Rt	H	Digestive
<i>Aegle marmelos</i>	Rutaceae	F	T	Burning sensation
<i>Ruta graveolens</i>	Rutaceae	L	H	Cough, Asthenopia, emblyopia
<i>Toddalia asiatica</i>	Rutaceae	F	S	Cough
<i>Citrus medica</i>	Rutaceae	F, Rt	T	Stimulant, astringent, digestive, asthma, anthelmintic
<i>Murraya koenigii</i>	Rutaceae	L	T	Anthelmintic, stomach ache, antidysentric
<i>Feronia elephantanum</i>	Rutaceae	Fr	T	Blood purifier, liver, kidney stone,
<i>Azima tetraantha</i>	Salvadoraceae	B	S	Stomach ache

Table 1-Continue

Botanical names	Family	Part used	Habit	Medicinal use
<i>Santalum album</i>	Santalaceae	St, Rt	T	Antipyretic, aphrodisiac, antibilious, asthma, Purgative, stimulant, expectorant
<i>Sapindus laurifolia</i>	Sapindaceae	Fr	T	Diaphoretic, diuretic, aperient
<i>Cardiospermum halicacabum</i>	Sapindaceae	Rt	C	Ear ache, snake bite, dandruff
<i>Sapindus emarginatus</i>	Sapindaceae	Fr	T	Vulnerary, diarrhea
<i>Datura metal</i>	Solanaceae	Rt, S	S	Nervous disorder, madness, sleeplessness
<i>Withania somnifera</i>	Solanaceae	Rt, L	S	Vomiting, tooth ache
<i>Solanum album</i>	Solanaceae	F	S	Antidysentric, digestive
<i>Corchorous capsularis</i>	Tiliaceae	L, Rt	S	Vulnerary, antiphlegmatic, antiparalytic, antibilious
<i>Grewia tiliifolia</i>	Tiliaceae	B	T	Antidysentric, asthma, antibilious,
<i>Tectona grandis</i>	Verbenaceae	B, Rt, St	T	Vulnerary, rheumatism, vermifuge, diaphoretic
<i>Lantana camara</i>	Verbenaceae	L	S	Insecticide, cough, snake bite, cancer
<i>Vitex negundo</i>	Verbenaceae	L	S	Rheumatism
<i>Clerodendrum inerme</i>	Verbenaceae	Rt	S	Asthma, dog bite, insect bite
<i>Cissus quadrangularis</i>	Vitaceae	St	H	Cold, Skin disease, Worms
<i>Curcuma longa</i>	Zinziberaceae	St	H	Heart disease, Gastric
<i>Tribulus terrestris</i>	Zygophyllaceae	Fr	H	

Note: L-Leaves, B-Bark, Rt-Root, St-Stem, S-Seeds, F-Flowers, Fr-Fruits H-Herb, S-Shrub, T-Tree, C-Climber, WP-Whole Plant

## Conclusion

The survey indicated that, the study area has magnificent plant diversity with plenty of medicinal plants to treat a wide spectrum of human ailments. It is evident from the interviews conducted in different villages; knowledge of medicinal plants is limited to traditional healers, herbalists who are living in rural areas and collecting the medicinal plants from the semi-malnad unscientifically. The investigation concluded that the unscientific collection of ethno-botanical plants from the semi-malnad of Hassan district possess greater pressure on the depletion of diversity of the local region. Hence, there is an urgent need to assess the biodiversity of the local forest, and conserve the biodiversity as well as the traditional knowledge by proper documentation and conservation strategies.

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