



Available online at www.ewijst.org

ISSN: 0975-7112 (Print)

ISSN: 0975-7120 (Online)

Environ. We Int. J. Sci. Tech. 5 (2010) 223-233

Environment & We
An International
Journal of Science
& Technology

Survey on Ethno medicinal Plants of Jogimatti Forest Chitradurga District, Karnataka, India

V.T., Hiremath^{1*}, M.M.J. Vijaykumar², and T.C. Taranath³

¹Department of Botany, SJM College of Arts, Science & Commerce, HLK Road, Chitradurga-577 501, Karnataka, India.

²SJM College of Pharmacy, Chitradurga-577 501, Karnataka, India.

³Department of Studies in Botany, Karnatak University, Dharwad-580 003, Karnataka, India.

*Email: hiremath2047@gmail.com

Abstract

The present investigation is an attempt to an ethno medicinal plants survey was carried out in Jogimatti Forest of Chitradurga district, Karnataka, for the exploration of medicinal plants used to cure various diseases by the local health healers. Information was gathered from the tribes and local health healers through questionnaire and personal interviews during study visits. Present investigation reveals that the local health healers are routine use 40 medicinal plants under 36 families for the treatment of 42 diseases either in single (22 applications) or in combination with some other ingredients, (28 applications). The study reveals that leaves, stem/bark were most frequently used (18 species), followed by seeds (13 species), Fl/fl.buds (09 species), roots (08 species), fruits (07 species), entire plant (04 species), and latex (03 species) for the treatment of various ailments like eye ailments, joint pains, paralysis, urinary infection, eczema, fever, rheumatic complaints, inflammations, leprosy, cough and cold, herpes, ring worms, asthma, wound/burns, renal pain etc. The study also showed that many people of Chitradurga district still continue to depend traditionally on medicinal plants for primary health care.

Keywords: Jogimatti forest; Hakki-Pikki; Health healer. Traditional knowledge; Medicinal plants.

Introduction

Plants have been used in traditional medicine for thousands of years (Abu-Rabia 2005). The knowledge of medicinal plants has been accumulated in the course of many centuries based on different medicinal systems such as Ayurveda, Unani and Siddha. 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). Medicinal plants are the basic health care of rural households form the resource base for rapidly growing pharmaceutical industry and cosmetic. The ancient civilization including China, Egypt and Indus Valley revealed the utilization of medicinal plants by them (Kirtikar, and Basu, 1935) In recent years, there has been a tremendous range of interest in the medicinal plants especially those used in traditional systems of medicines. Drugs obtained from plant are believed to be much safer and exhibit a remarkable efficacy in the treatment of various ailments (Siddiqui, *et.al.* 1995). The folk medicinal traditions play a reflecting and prominent role in human and environment interaction (Chopra, *et.al.*1956). It is estimated that 70 to 80% of the people worldwide rely chiefly on traditional health care system and largely on herbal medicines (Farnsworth *et.al.* 1985, 1991, Shengii 2002, Shanley, *et.al.* 2003). Several workers were reported the utility of plants for the treatment of various ailments (Goel, *et.al.* 1981, Hebbar *et.al.* 2004, Katz, *et.al.*, 2007, Leach, 2007).



Figure 1 District map showing collection of data

The main objective of this study was to assess the diversity of ethno medicinal plants of Jogimatti forest used by the local health healers and document the traditional medical practices followed in healing ailments. Similar ethno botanical studies have been reported in several parts of India to document the traditional knowledge that has been vanishing (Rajan *et.al.*, 2002; Ganesan *et al.*, 2004; Sandhya *et al.*2006; Ignacimuthu *et al.*, 2006). Therefore documenting indigenous knowledge through ethno botanical studies is important for the conservation of biological resources and their sustainable utilization.

Materials and Methods

Description of the study area

The area of investigation Jogimatti forest of Chitradurga approximately lies between longitudinal parallels of 76' 01 and 77' 01 east of Greenwich and latitudinal parallels of 13' 34 and 15' 02 north of equator with an elevation of 1152 m above mean sea level. Chitradurga is one of the central districts of Karnataka state with much racial and socio-cultural diversity. The geographical area of the district is 8,388 square kilometers, which accounts for 4.37 percent of the state's geographical area. As per the physio-agronomic classification of the areas within the state; Chitradurga belongs to South-Eastern Cool and equitable maidan zone. The terrain is not uniform throughout the

district and is characterized by vast stretches of undulating plains, the forests are dry deciduous to scrub with undulating chain of hills.

Ethnobotanical Survey and Traditional Practitioners

The present investigation is an attempt to a survey of ethno medicinal plants of Jogimatti forest, Chitradurga. Local traditional healers for treating others were often visiting the Jogimatti forest of the district to collect plant species. A total of 30 health healers were identified between the ages of 40 and 80 years for the survey. Periodic field surveys were carried out in Jogimatti Forest of Chitradurga during October 2008 to January 2009. Data were collected through tribal people, (Bedas, Bestha, Golla, Kuruba, Jenu kuruba, Lambani, Hakki-pikki), local vaidyas, village elders and native medicine men residing around Jogimatti hills through personal communication using questionnaire. 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.

The local health practitioners were requested to collect specimens of the plants they knew or to show the plant species on site. The health healers themselves or had tradition of healing in their families and had knowledge of the medicinal use of the plants. The wealth of medicinal plant knowledge among the people of this district is based on hundreds of yhears of beliefs and observations. This knowledge has been transmitted orally from generation to generation. 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, Hooker, 1884; Gamble 1936; and Saldhana 1984. All the preserved specimens were deposited in the department of botany, SJM College, Chitradurga, Karnataka.

Results and Discussion

The results of the survey are presented in Table 1 and the plants are arranged in alphabetical order. The present investigation comprises 40 plant species belonging to 36 families to treat 42 diseases. For each plant species, botanical name, family, local name, part used, methods of preparation is provided. Among the plants used by the health healers, trees constitute (25 species), Shrubs (10), Herbs (11), Climbers (03) followed by the epiphytes with one species (Fig.2). The dominant 05 plant families used in the treatment are Fabaceae (07 uses), Mimosaceae, (05 uses), Caesalpinaceae (04 uses), followed by Euphorbiaceae, and Combretaceae, (03 uses) each. (Fig.3.)

Local traditional healers are commonly using the following plants to treat more number of diseases. They are: *Abrus precatorius*, *Acalypha indica*, *Acacia catechuy*, *Acacia nilotica*, *A. leucophloea*, *Albizia lebbek*, *Aloe vera*, *Amaranthus spinossus*, *Argemone Mexicana*, *Asparagus racemosus*, *Azadirachta indica*, *Bauhenia variagata*, *Bambusa arundinaceae*, *Butea monosperma*, *Cassia fistula*, *Commelina bengalensis*, *Datura innoxia*, *Embllica officinalis*, *Erythrina indica*, *Ficus bengalensis*, *Leucas aspera*, *Mangifera indica*, *mimosa pudica*, *Mimosops elongi*, *Moringa pterygosperma*, *Murraya koenigi*, *Ocimum sanctum*, *O. basilum*, *Pongamia glabra*, *Quisqualis indica*, *Santalum*

album, *Solanum indicum* and *S. nigrum*. Preference for their use may be related to their availability. The present ethno botanical survey reveals that among the different plant parts used, leaves and bark were most frequently used [18 plants], followed by fruits [13 plants], Fl/flower buds [09 plants], roots [08 plants], seeds [07 plants], entire plant [04 plants], and latex [03 plants] for the treatment of various ailments like eye problems, joint pains, paralysis, urinary infections with single or multiple application. These are taken internally or applied externally in the form of infusion, decoction, paste or powder. The plants used in medicines are enumerated and arranged alphabetically with their botanical name parts used and ethno medicinal uses (Table.1.).

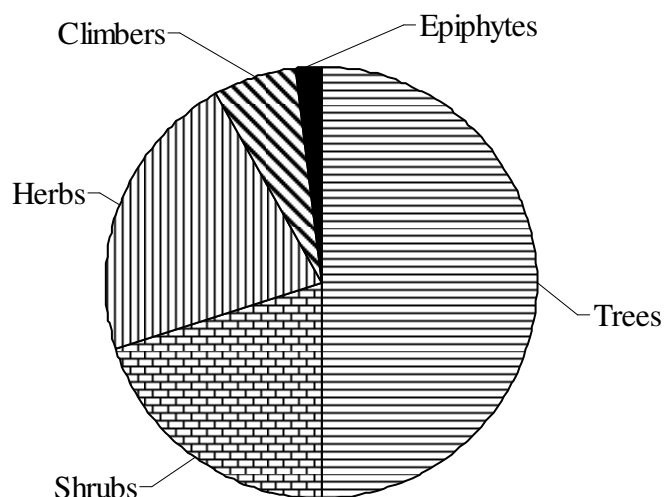


Figure 2 Habit wise analysis of medicinal plants

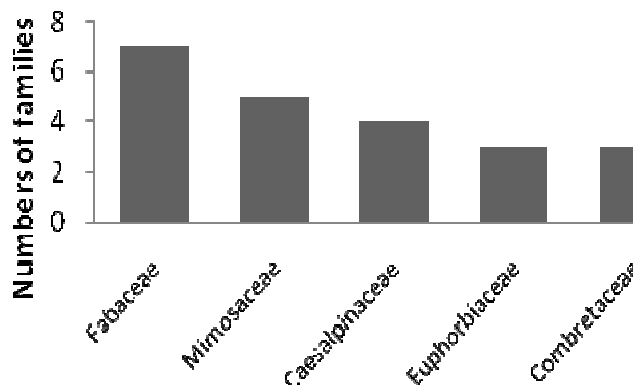


Figure 3 Dominant plant families used in Ethnomedicine.

Table. 1 Parts used, Medicinal value of common species inhabiting Jogimatti forest.

Sl.No.	Plant species	Parts used	Medicinal Uses
01	<i>Abrus precatorius L.</i>	Leaves, seeds and roots	Decoction of roots and leaves used against coughs and colds, roots, diuretic, seeds administered in case of disorders of nervous system and their paste applied locally for stiffness of shoulders joints and paralysis.
02	<i>Acalypha indica L.</i>	Flowers, seeds	Flowers used against diarrhea, colds and coughs. The juice of the leaves used for cutaneous infections.
03	<i>Acacia catechu (Roxb.) Willd.</i>	Wood	A product from heart wood called kheersal is used in case of sore throats and coughs.
04	<i>Acacia nilotica (L.) Willd.</i>	Bark, pods	Decoction of the bark used as oral gargle and that of pods in urino-genital diseases.
05	<i>Acacia leucophloea (Roxb.) Willd. Ex Delite</i>	Bark	Bark is used in bronchitis and biliousness.
06	<i>Albizia lebbek (L.) Benth</i>	Bark, leaves and seeds	Extract of the bark is used in case of boils, and that of leaves and seeds for eye ailments.
07	<i>Aloe vera (L.) N.Burman</i>	Leaves	Extract of the leaves used in the treatment of hemorrhoids, skin disorders, burns and liver disorders, and urinary infection.
08	<i>Amaranthus spinosus L.</i>	Whole plant	Used as febrifuge, and for eruptive fever and eczema.
09	<i>Argemone mexicana L.</i>	Seeds	Seeds yield a mucous used in cutaneous troubles and used in ophthalmic treatments.
10	<i>Asparagus racemosus Willd.</i>	Whole plant	The plant is used as a tonic, diuretic, its medicinal oil are used in case of rheumatic complaints
11	<i>Azadirachta indica A. Juss.</i>	Bark, leaves, flower, seeds	The bark is used in skin disorders. Leaves are antiseptic, applied to boils in the form of poultice, decoction given for ulcers and eczema. Flowers as tonic, berries as purgative. Seeds are used against inflammations and leprosy.
12	<i>Bambusa arundinacea (Retz.) Roxb.</i>	Leaves	Leaves are administered in horses in case of cough and colds.
13	<i>Bauhenia variagata Linn.</i>	Bark, seeds.	Bark is an astringent, used in case of piles, Cough and cold, anti diabetic, anticancer. It is an astringent, used in diarrhea. Seed powder

			with lemon juice as a cure for Dhobis's itch (Herpes).
14	<i>Cassia fistula L.</i>	Bark, seeds	Used in rheumatism, paralysis, eczema, ringworms and swellings.
15	<i>Commelina bengalensis L.</i>	Whole plant	The plant is considered as emollient, laxative and refrigerant, used in case of leprosy.
16	<i>Datura innoxia Mill.</i>	Seeds	It is a cerebral depressant useful in agitated and menstrual conditions.
17	<i>Digitalis purpurea L.</i>	Leaves	Leaves contain the drug digitalis, used in cardiac ailments. It increases systolic contraction of the heart.
18	<i>Dodania viscosa (L.) Jacq.</i>	Leaves	Leaves are used as febrifuge and in burns, swellings and wounds.
19	<i>Emblica officinalis Gaertner.</i>	Fruit	Used to eliminate kidney stones and gall stones. It is a remedy for the early stages of jaundice. It is also used in case of diabetes and fever.
20	<i>Erythrina indica L.</i>	Leaves, seeds	Leaves are considered laxative, diuretic and anthelmintic. Seeds are poisonous.
21	<i>Ficus bengalensis L.</i>	Leaves, latex, bark	The leaves are used as a tonic. Latex is useful in case of rheumatism and lumbago. The infusion of the bark is an astringent and is used in treatment of diarrhoea, dysentery and diabetes.
22	<i>Leucas aspera (Willd.) Link.</i>	Leaves, flowers	The juice of the leaves is applied externally in case of psoriasis, skin eruptions and painful swellings. Flowers used against cough and colds. The plant is an antipyretic.
23	<i>Mangifera indica L.</i>	Bark, fruit, seeds	Fruit is used as a laxative and diuretic. The decoction of the bark is used for the cure of uterine hemorrhage. Seeds are used in the treatment of asthma.
24	<i>Mimosa pudica L.</i>	Leaves, roots	Leaves used in dressings for sinus, sores and piles. The decoction of the root is used in urinary complaints.
25	<i>Mimusops elongii L.</i>	Bark, flower, fruits.	Bark and fruits used in the treatment of diarrhea, dysentery. Dried flowers used as a snuff. Pounded seeds are used for constipation.
26	<i>Mirabilis jalapa L.</i>	Leaves	Leaves applied to boils, wounds, burns and to treat itching in urticaria.

27	<i>Moringa pterygosperma Gaertner.</i>	All parts	Used in the treatment of venomous bites, rheumatism and as a cardiac and circulatory stimulant. Leaves used in the treatment of scurvy and catarrhal infections. Flowers are antipyretic. Seed oil is used in rheumatism.
28	<i>Murraya koenigii (L.) Sprengel.</i>	Leaves roots	Used as a carminative and in the treatment of diarrhea, dysentery and to check vomiting. The juice of root is administered to relieve renal pain.
29	<i>Ocimum basilium L.</i>	Whole plant	Plants are antipyretic, diaphoretic, used as carminative and as expectorant. Seeds are diuretic used in the treatment of chronic constipation.
30	<i>Ocimum sanctum L.</i>	Leaves, seeds	Leaves yield a volatile oil used in cosmetics and as an expectorant. Used in the treatment of chronic constipation and piles.
31	<i>Pandanus fascicularis Lam.</i>	Bark, flowers	The decoction of the roots used in venereal diseases. Male spandexes are considered as an aphrodisiac.
32	<i>Plumaria acuminata R. Br.</i>	Bark, latex, root	Bark is stimulant. Its decoction is used as purgative febrifuge and in dropsically and venereal infections. Latex rubificent and purgative. Roots are catharactic.
33	<i>Pongamia glabra Vent.</i>	Bark, leaves, seeds	The decoction of the bark is used in the treatment of beriberi. The juice of the leaves is prescribed in treating flatulence, dyspepsia and diarrhea. The root extract is used in cleansing foul ulcers, fistulous sores and strengthening gums. Seed oils used in case of scabies, herpes, leucoderma.
34	<i>Psidium guajava L.</i>	Leaves, fruit	Leaves used an astringent. The decoction of the bark is given in case of diarrhoea. Fruits are laxative, used in bleeding gums.
35	<i>Punica granatum L.</i>	Bark, leaves, seeds	Bark used to expel tapeworms. Rind used as astringent, in diarrhoea and dysentery. Fruit is useful in bleeding gums.
36	<i>Quisqualis indica L.</i>	Fruits, seeds	Fruits and seeds are anthelmatic. Seeds are used in diarrhoea and fever. Also used in the treatment of rickets.
37	<i>Santalum album L.</i>	Bark,	Both the wood and oil are diuretic, refrigerant and expectorant.

38	<i>Sarcostemma acidum</i> (Roxb.) Voigt.	Fruits, seeds	Dried stems emetic, infusion of roots given to persons bitten by rabies dogs.
39	<i>Solanum indicum</i> auct.non. L.	Fruits, seeds	Roots are carminative and expectorant. Extract of herb affects human epidermal carcinoma of the nasopharyngeal tissue. Fruits are an alternative source of steroidal material for the preparation of cortisones and steroid sex hormones.
40	<i>Solanum nigrum</i> auct.non.L.	Fruits, seeds	Fruits and seeds are antiseptic and anti-dysenteric used in cardiac treatments. The infusion of the herb is applied to anthrax pustules. It's decoction is narcotic and antispasmodic. Freshly prepared extract of the herb is effective in cirrhosis of lever. Berries are diuretic and cathartic, employed as a remedy for fever.

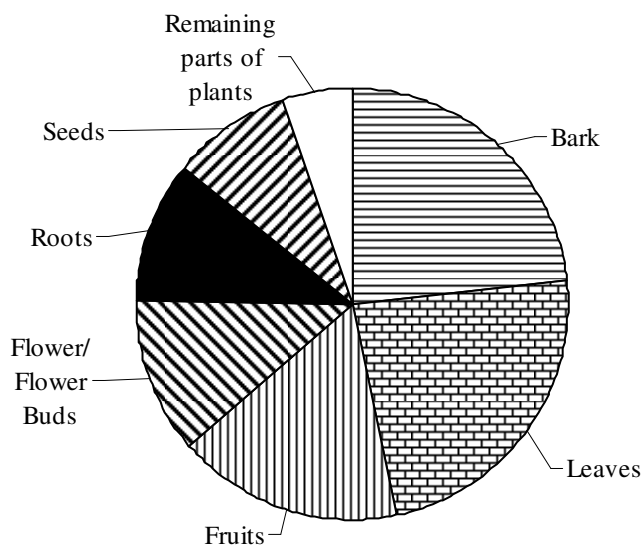


Figure 4 Plant part wise ethno medicinal uses

The tribal people life is interwoven around the forest ecology and forest resources. They were found to be the repository of accumulated experience and knowledge of indigenous vegetation which can be utilized, in various integrated tribal developments. They depend on plants for their livelihood and collected tubers, roots, rhizomes, barks, flowers, fruits and seeds, gums, honey and wax etc., for their traditional modes of treatment of disease and various ailments. Information on some very useful medicines known to the tribal communities through experiences of ages is usually passed

on from generation to generation (Ganesan *et al.*, 2004). Different parts of medicinal plants were used as medicine by the local traditional healers.

Among the different plant parts, the leaves were most frequently used for the treatment of diseases followed by whole plant parts, fruits, stem, root, bark, seeds, flowers and latex. The methods of preparation fall into four categories viz; plant parts applied as a paste, juice extracted from the fresh plant parts, powder made from fresh or dried plant parts, some fresh plant parts and decoction. External applications are mostly for skin diseases, snake bites and wounds while the internal consumption of the preparations was involved in the treatment of diseases.

It was observed that, most of the remedies consisted of single plant part and more than one method of preparation. However, many of the remedies consisted of different parts of the same plant species to treat single or more diseases. For example, *Abrus precatorius*-Decoction of roots and leaves used against cough and colds, while the paste is applied for stiffness of shoulders, joints and paralysis; *Acalypha indica*-Flowers are used against diarrhea, cold and cough. The leaf juice is used for cutaneous infections; *Albizia lebbek*-Bark extract is used for boils while that of leaves and seeds are used for eye ailments; *Azadirachta indica*-Bark is used in skin disorders, leaves are antiseptic applied to boils, decoction is given for ulcers, while the flowers are used tonic, fruits are used purgative and seeds are used against inflammations and leprosy; *Bauhenia variagata*- Bark is an astringent, used for piles, cough and cold, anti-diabetic, anti-inflammatory, cough and cold, while seed powder with lemon juice is used for herpes; *Ficus bengalensis*-Leaves are used as a tonic, latex is useful in case of rheumatism, while the infusion of the bark is an astringent and used in diarrhoea, dysentery and diabetes; *Mimosa pudica*-Leaves used in dressings for sinus, sores and piles. Root decoction is used in urinary complaints; *Mimosops elongii*- Bark and fruits used in the treatment of diarrhea, dysentery. Dried flowers used as a snuff. Pounded seeds are used for constipation.

Several studies have enumerated the plants used for various ailments in various parts of the world (Saikia *et al.*, 2006, Harsha *et al.*, 2002, Chah *et al.*, 2006; Harsha *et al.*, 2003). Ghorbani 2005 reported 16 plant species that were used for respiratory diseases in north Iran and safety and efficacy of the treatments for respiratory tract infections were reviewed. Common ailments such as headaches or coughs are considered to be diseases with natural causes and hence their symptoms are treated at the household level, without resource to magical practices (Busia, 2005).

Conclusion

The survey indicated that, the study area Jogimatti forest has 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 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 investigation

concluded that even though the accessibility of Western medicine for simple and complicated diseases is available, many people in the studied parts of Chitradurga district is still continue to depend on medicinal plants, at least for the treatment of some simple diseases such as cold, cough, fever, headache, poison bites, skin diseases and tooth infections.

The present day traditional healers are very old. Due to lack of interest among the younger generation as well as their tendency to migrate to cities for jobs, there is a possibility of losing this wealth of knowledge in the near future. It thus becomes necessary to acquire and preserve this traditional system of medicine by proper documentation and identification of specimens.

Acknowledgements

The authors are grateful to the local traditional health healers in the district for sharing their knowledge on herbal medicine. We also thank the Chitradurga Forest Department for permission to document the medicinal plants. Authors also gratefully acknowledge the financial assistance given by the University Grants Commission, New Delhi, India.

Authors' contributions: V.T. Hiremath (Associate Professor), Project leader, contributed in experiment design and data collection, preparation of manuscript. and corresponding author of manuscript. Mr. Vijayakumar M.M.J. (Lecturer) contributed collected data, assisting in preparing the manuscript, graphs and tables. Dr. T.C. Taranath (Associate Professor) contributed in experiment design and final editing of the manuscript and also co-investigator of the project.

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