



Ethnobotanical survey of common medicinal plants in Bhiwani, Haryana, India

Ajit Singh^{*1}, Hoshiar Singh Tak², Lalita Singh², Amit Kumar¹ and Sandeep Kumar³

¹Department of Botany, Govt. College, Bhiwani, Haryana, India

²Department of Botany, C.B.L.U., Bhiwani, Haryana, India

³Department of Chemistry, Govt. College, Bhiwani, Haryana, India

Received: 04-02-2015 / Revised: 19-02-2015 / Accepted: 25-02-2015

ABSTRACT

The present study reveals the ethnobotany and traditional medicinal uses of common medicinal plants of district Bhiwani, Haryana (India) from August 2014 to December 2014. During the survey, 25 villages were visited and 100 people from each village were interviewed. The medicinal plants and their local medicinal uses were documented on the basis of survey. 60 plant species belonging to 36 families were reported which are used by the local inhabitants to cure various ailments like Asthma, urinary disorders, cough and cold, fever, skin diseases and tumor etc. Apocynaceae and Solanaceae families were found to dominate having 5 taxa each followed by Moraceae with 4 taxa, Convolvulaceae, Euphorbiaceae, Malvaceae with 3 taxa each, Amaranthaceae, Caesalpinaceae, Mimosaceae, Myrtaceae, Poaceae, Polygonaceae, Rutaceae with 2 taxa each and rest of the families having one taxa each. For each plant species necessary informations like botanical name, family of plant species, local name, plant part used and medicinal uses are given.

Key words: Ethnobotany, medicinal plant, Traditional medicine, Bhiwani



INTRODUCTION

Ethnobotany is a tool which plays an important role in understanding the dynamic relationships between biological diversity, social and cultural systems. Since time immemorial, plants have been an indispensable source of medicines for human health problems [1]. About 80% of the world's population, especially in the developing countries depends on herbal medicine for their healthcare needs [2]. Herbal medicine is considered to be most important primary health care system. Traditional medicine still remains the main resource for treating health problems because medicinal plants are accessible and cheap. The use of herbal medicines is increasing in primary health care because of their cultural acceptability, better compatibility with human body and lesser side effects [3]. A large number of plant species are known for their medicinal properties. The demand of medicinal herbs is increasing due to their use in herbal formulations [4,5,6]. Continues increase in the potential of killer disease like cancer, AIDS and other disease like Diabetes and arthritis **coupled with side effects of synthetic drug**, has drifted the interest of people from allopathy to alternative system of medicine.

Traditional medicine has been used for thousands of years, with great contributions made by practitioners to human health, particularly as primary health care at the community level [7]. The local inhabitants have enormous knowledge about medicinal uses of plants is mostly undocumented and transmitted orally from generation to generation. Therefore, it is urgent to explore and document this unique and indigenous, traditional knowledge of the tribal community, before it diminishes with the knowledgeable persons. Further, documentation of indigenous and traditional knowledge is very important for future critical studies which lead to sustainable utilization of natural resources [8]. Keeping these things in mind, present study was proposed to document the ethnomedical knowledge of traditional healers in district Bhiwani, Haryana. Related informations like botanical name, family of plant species, local name, plant part used and medicinal uses are also documented for future reference.

MATERIALS AND METHODS

The study was undertaken in district Bhiwani, Haryana from August 2014 to December 2014. Bhiwani district is situated on 28.78° 57.85" N and

**Corresponding Author Address: Dr. Ajit Singh, Assistant Professor, Deptt. Of Botany, Govt. College, Bhiwani, India; E-mail: ajit04mdu@gmail.com*

76.13° 3.68"E (Figure. 1). The district is divided in six sub-division viz. Bhiwani, Charkhi Dadri, Loharu, Siwani, Badhra and Tosham. Present study was conducted in 25 villages of Bhiwani division on the basis of questionnaires and interviews for collecting information. The survey involves various steps in study like field study in which questionnaire was filled by the tribal's and personal interview was organized, collection of plant specimen, preparation of herbarium and identification of plants. The Ethnobiological information was obtained from Baidyas, Sirhas, Gunias, knowledgeable person, experienced people, medicine men, and heads and local inhabitants of the village, who have knowledge of plants for health and livelihood security. All the villages were regularly visited and data was recorded by using making personal visits and interviews. The documentation of the information given by folk healers and baidyas was documented under following heads:

1. Name of the disease.
2. Name of the plant
3. Vernacular name.
4. Family name
5. Plant part used.
6. Habit of the plant
7. Other ingredients used.
8. Drug preparation.
9. Extend of use /degree of popularity
10. Drug application and its effectiveness.

RESULTS AND DISCUSSION

The present study reveals the ethnobotany of some commonly available plant used by local inhabitants to cure various ailments. During the survey of 25 villages 100 peoples from each village, were interviewed including folk healers and baidyas. In the present study, 60 plant species belonging to 36 families were reported (Table 1). For each plant necessary related information like botanical name, family of plant species, local name, plant part used and medicinal uses are given in Table 1. These are used as ethnomedicines for various severe health problems like jaundice, cancer, Abortion, Anti inflammations, Asthma, Arthritis, Blood Pressure, Blood Bleeding, Cough, Diabetes, Dandruff, Diarrhea, Fertility improvement of male, Fever, Filariasis, Hepatitis, Jaundice, Kidney disease, Ladies White Discharges, Muscular Pains, Pains, Paralysis, Ring Worm, Sugar, Scorpion Bite, Skin Allergy, Stomach Pain, Skin Diseases, STD's, Snake Bite, Tooth ache, Wound healing etc. by employing the preparations in the form of extracts, pastes, juices, powders.

During the visits and interviews it was found that the plant materials in combination with different plant materials are also used to prepare some medicine. Some medicines were found to be prepared by using other substances, such as sugar candy, curd, honey, hair oil, milk and turmeric powder. The data collected from the Baidyas, Sirhas, Gunias, knowledgeable person, experienced people, medicine men, and heads and local inhabitants of the village pertaining to the treatment of various ailments by plant parts used for medicinal preparation were bark, roots, leaves, fruits, flowers, Stem, seeds and the whole plants. Among the different plant parts used for the preparation of medicine the leaves were the most important and frequently used for the preparation of drugs. The use of trees instead of herbs and shrubs was found frequent being used for traditional medicine and it could be as a result of their availability throughout the year.

In the complete study, Apocynaceae and Solanaceae families were found to dominate and most frequent having 5 taxa each followed by Moraceae with 4 taxa, Convolvulaceae, Euphorbiaceae, Malvaceae with 3 taxa each, Amaranthaceae, Caesalpiniaceae, Mimosaceae, Myrtaceae, Poaceae, Polygonaceae, Rutaceae with 2 taxa each and rest of the families having one taxa each. During the survey in different villages, it was reported that asthma, fever, cough, cold, stomach problems, sex problems and urinary tract problems were common. *Acacia nelotica*, *Achyranthes aspera*, *Amaranthus viridis*, *Azadirachta indica*, *Calotropis procera*, *Cassia fistula*, *Chenopodium album*, *Cynodon dactylon*, *Eucalyptus*, *Ficus bengalensis*, *F. religiosa*, *Morus alba*, *Nerium indicum* and *Prosopis julifera* were commonly and widely occurring plants in the study area. These plants are commonly used to treat various ailments. *Acacia nelotica* is used by traditional healers to treat sexual problems and the leaves of the plants are used in the remedy of diabetes. The leaves of *Amaranthus viridis* is used in scorpion sting and snake bite which is also a general problem in villages. The leaf and bark paste of *Azadirachta indica* is used by baidyas in skin problems. This plant is also used to treat Asthama and purify blood. In joint pains, teeth and urinary problems, the bark and milk of *Ficus bengalensis* is used. *Chenopodium album* is a wild species which is also grown for domestic use. It is used to cure kidney disorder, ulcers and as a sex stimulant by the local people. During the whole study, it was reported that wild species are used in large amount for the treatment of common disease. But due to the advancement of the science and discovery of various allopathic drugs, this traditional knowledge is going to deam. Because of the slow recovery of

homeopathic drugs, the people are going towards allopathy which have fast recovery in comparison. All these activity could creat a danger for the traditional knowledge and existance of homeopathy.

Conclusion

The present study reveals the ethnobotany of some medicinal plants used by Baidyas, Sirhas, Gunias, knowledgeable person, experienced people,

medicine men, and heads and local inhabitants of the village to cure some sever disease. The information given could be useful for researcher in the field of ethanobotany, taxonomy and pharmacology. The modern generation is inclined towards the use of allopathic medicines and it seems that traditional knowledge of medicinal plant could be lost. There is a threat of losing this wealth of knowledge in the near future.

Table.1. Description of medicinal properties of plants used by tribal people in Bhiwani, Haryana

Name of the Species	Common Name	Family	Plant Part Used	Medicinal Value
<i>Abutilon indicum</i> L.	Indian mallow	Malvaceae	Whole plant	Treat leprosy, ulcer, headaches, gonorrhea and bladder infection, Diuretic, hyperdipsia, vomiting, Leukorrhea and Menorrhagia
<i>Acacia nelotica</i> L.	Indian gum Babul	Mimosaceae	Leaves, Root, Fruits	Treat sexual debility, diarrhea, leucorrhea and tonsillitis, ripened fruit is laxative. Leaves cure diabetes, cough, inflammation and asthma.
<i>Achyranthes aspera</i> L.	Prickly chaff flower plant	Amaranthaceae	Whole plant	Treatment of vomiting, bronchitis, heart disease, piles, itching abdominal pains, ascites, dyspepsia, dysentery, blood diseases
<i>Aegle marmelos</i> L.	Bael tree	Rutaceae	Leaves, Root, Fruits	Treat gastrointestinal disease, piles, oedema, jaundice, vomiting, obesity and gynecological disorder, Leaves cure diabetes.
<i>Albizia lebbek</i> L.	Lebbeck Siris	Mimosaceae	Bark, Flowers, Seeds.	Treat poisoning, skin diseases and urinary retention, inflammation, cough, skin diseases, diarrhea. Antibacterial and antiseptic.
<i>Amaranthus viridis</i> L.	Pigweed Jangali Chaulai	Amaranthaceae	Leaves	Hormone regulator, antimicrobial, antioxidant, anticancer, antiviral antipyretic, anti-inflammatory and anti-allergic, Leaves are emollient and used in scorpion sting and snake bites.
<i>Argemone maxicana</i> L.	Prickly poppy Shial kanta	Papaveraceae	Whole plant	Cure ophthalmia and leprosy, guinea-worm infestation, skin diseases, itching, inflammations, all types of poisoning, constipation, flatulence, colic, malarial fever and vesicular calculus
<i>Azadirachta indica</i> A. Juss.	Neem tree	Meliaceae	Whole plant	Treat leprosy, eye problems, epistaxis, skin ulcers, fever, piles, urinary disorder, diabetes, cough, asthma, scabies, skin diseases,

				inflammation, tumors, jaundice, arthritis and also antibacterial, antifungal and antiviral.
<i>Bidens pilosa</i> L.	Spanish needles	Asteraceae	whole herb	Used in skin diseases, ulcers, wound healing, urinary tract infection, inflammation and leprosy
<i>Boerhaavia diffusa</i> L.	Hogweed Punarnava	Nyctaginaceae	Root, leaves and seeds	Cure fever, constipation, leucorrhoea, lumbar pain, skin diseases, cardiac disorders, urinary infection, stone, anemia, dyspepsia, and constipation.
<i>Brassica campestris</i> L.	Indian colza musted	Brassicaceae	Whole plant	Muscle relaxation and wound healing, root are emollient and diuretic and seeds used in cancer
<i>Calotropis procera</i>	Swallow wart milkweed, Ak	Apocynaceae	Latex	Used in skin diseases, jaundice and toothache
<i>Canna indica</i> L.	Indian shot	Cannaceae	Rhizome and root	Treatment of gonorrhoea and amenorrhoea, demulcent, diaphoretic and diuretic.
<i>Cannabis sativa</i> L.	Hemp	Cannabaceae	Dried leaf & Flowering shoot	Used in Insomnia, abdominal disorders, cough, insanity, erectile dysfunction, inflammation and possess narcotic property.
<i>Capparis decidua</i> (Roth.)	Caper plant Kair	Capparaceae	Root, bark and flower buds	Diuretic, tonic, vasoconstrictor and hemorrhoid, strengthen hair and increase blood flow
<i>Cassia fistula</i> L.	Indian laburnum	Caesalpiniaceae	Whole plant.	Cure Constipation, burning sensation, leucorrhoea, skin disease, fever, cough, bronchitis, inflammations and rheumatism.
<i>Cassia occidentalis</i> L.	Septic weed	Caesalpiniaceae	Root, Seeds, Leaves	Used to cough, bronchitis, allergy, asthma, fever, constipation, diabetes, skin diseases, wounds and ulcers
<i>Centella asiatica</i> L.	Thyme leaved Brahmi	Plantaginaceae	Whole plant	Treat bronchitis, asthma, gastrointestinal disorder, skin diseases, neuralgia, inflammations, epilepsy, insanity, ulcers, splenomegaly, flatulence and fever, Improve memory, anticancer.
<i>Chenopodium album</i> L.	Lamb's quarter	Chenopodiaceae	Whole plant	Peptic ulcer, intestinal worms, dyspepsia, flatulence, urinary retention, kidney diseases, general debility and the plant acts as a sexual stimulant
<i>Citrus limon</i> L.	Lemon tree	Rutaceae	Fruit	Treatment of arteriosclerosis, bleeding gums, scarlet fever, appetite, ulcers, arthritis,
<i>Cuscuta reflexa</i> Roxb.	Dodder	Convolvulaceae	Shoot	Treat hair fall, itching, edema, impotence, intestinal worms, edema, skin diseases, diarrhea,

				headache, fever malignancy and paralysis.
<i>Cynodon dactylon</i> L.	Indian doob	Poaceae	Whole plant	Improve digestion, increase RBC count and remove toxin from body, reduce acidity, useful in emetic, piles, oligouria and psychotic disorders.
<i>Cyperus rotundus</i> L.	Nut grass	Cyperaceae	Root tuber	Cure diarrhea, indigestion, anorexia, fever, and urinary retention. Increases and purifies breast milk
<i>Datura stramonium</i> L.	Stink weed	Solanaceae	Whole plant	Used in arthritis, cough, asthma, muscle spasm, fever, ulcer and skin diseases.
<i>Eucalyptus hybrid</i> L.	Eucalyptus	Myrtaceae	Leaves and branches	Suppress coughs, Purify a sickroom, Dandruff remover, relieve exhaustion and mental sluggishness
<i>Eugenia jambolana</i> Lam.	Black plum	Myrtaceae	Fruit, seed, leaves & bark	Used to balance blood sugar, BP, gingivitis, antibacterial and antioxidant
<i>Euphorbia prostrata</i> Ait.	Small clover	Euphorbiaceae	Stem and leaves	Anti-inflammatory, blood purifier and its milky sap is consider to be a remedy against digestive disorder .
<i>Ficus bengalensis</i> L.	Banyan	Moraceae	Bark, milk, leaves, bud and fruit	Treat joint pains, toothache, lymphadenopathy, arthritis, prevents nausea, indigestion, diarrhea, dysentery and fissure, urine related problems and also in diabetes
<i>Ficus palmate</i> Forsk.	Chhotti anjeer	Moraceae	Fruits	demulcent, emollient, laxative and poultice
<i>Ficus religiosa</i> L.	Peepal tree	Moraceae	Bark, Leaves, Tender shoot, Fruits, Seeds and Latex.	Cure skin diseases, inflammation, poison, neuralgia, constipation and gynecological diseases
<i>Hibiscus rosa-sinensis</i> L.	China rose	Malvaceae	Root, & Fruit.	Used in cough, menorrhagia, dysmenorrhea, pruritus, burning sensation, fever, alopecia and dandruff
<i>Ipomoea aquatic</i> Forsk	Swamp cabbage	Convolvulaceae	Leaves and stem	Used as laxative, for diabetes, purgative, used for jaundice and nervous debility,
<i>Ipomoea carnea</i> Jacq.	Bush morning glory	Convolvulaceae	Whole plant	Sedative and anti-convulsant, anti-carcinogenic and oxytoxic properties
<i>Jatropha curcas</i> L.	Ratanjyot	Euphorbiaceae	Whole plant	Cure skin diseases, renal or vesical calculi, stomatitis, arthritis, pruritus, cough, bronchitis, cardio-myopathy and ulcers. Overdose will cause toxic symptoms
<i>Kigelia pinnata</i> (Jacq.)	Sausage tree	Bignoniaceae	Fruit	Possess rheumatic properties and cure dysentery, malaria, pneumonia, skin cancer and leprosy

<i>Malvastrum coromandelianum</i> (L.)	Prickly malvastrum	Malvaceae	Leaves	Leaves used to clean wounds, dysentery, sores and as diaphoretic.
<i>Mangifera indica</i> L.	Mango	Anacardiaceae	Root, Bark, Leaves, Fruits. Seeds.	Cure wounds, ulcer, vomiting, menorrhagia, and leucorrhoea. Seed especially cures menorrhagia and dysentery.
<i>Melia Azedarach</i> L.	Persian lilac	Meliaceae	Whole plant	Used in treatment of leprosy, scrofula, anthelmintic, antilithic, diuretic, deobstruent, resolvent and rheumatism.
<i>Morus alba</i> L.	White mulberry	Moraceae	Whole plant	Sedating, diuretic, tonic and astringent remedy in nervous disorders, antipyretic, liver-kidney tonic, blood-stimulating
<i>Musa paradisiaca</i> L.	Banana	Musaceae	Root flower and Fruit	Act as Anthelmintic, Laxative and astringent and cure bronchitis, dysentery and ulcer
<i>Nerium indicum</i> Mill L.	Oleander	Apocynaceae	Roots, Leaves	Treat haematemesis, conjunctivitis, infectious hepatitis with jaundice, favism, hematuria, traumatic bleeding, sprain and contusion
<i>Ocimum sanctum</i> .L.	Tulsi	Lamiaceae	Whole plant	Antispasmodic, appetizer, carminative, galactagogue, stomachic.
<i>Oxalis corniculata</i> L.	Indian sorrel	Oxalidaceae	Whole plant	Treat dyspepsia, hemorrhoids, dysentery, diarrhea, dysmenorrhoea, amenorrhoea, hepatitis and burning sensation
<i>Physalis minima</i> L.	Jangli rashbhari	Solanaceae	Whole plant	Act on burning sensation, hepatitis, splenomegaly, ascites, ulcer, sexual weakness and cough.
<i>Polyalthia longifolia</i> (Sonn.) Thw.	Mast tree	Annonaceae	Whole plant	Used to cure inflammation, fever, skin disease, diabetes, hypertension and worm infestation. Its bark is used as an adulterant
<i>Polygonum barbatum</i> L.	Knotgrass	Polygonaceae	Leaves, seeds, and roots.	Seeds are used for colic. Leaves and stems used to wash wounds and cure ulcers, diabetes, antiseptic, scabies.
<i>Prosopis juliflora</i> (Sw.)	Mesquite tree Kabuli kikar	Fabaceae	Whole plant	Antacid, antibiotic, antiseptic and antibacterial, Cathartic, cyanogenetic, discutient, emetic, and stomachic
<i>Ranunculus sceleratus</i> L.	Celery leaved buttercup	Ranunculaceae	Whole plant	Antispasmodic, diaphoretic, antiheumatic and treatment of cold and skin diseases
<i>Ricinus communis</i> L.	Castor oil plant	Euphorbiaceae	Root, Leaves, Flowers, Seeds, Oil	Antimicrobial and used in abdominal discomfort, constipation, inflammation, fever, bronchitis, cough, leprosy, skin diseases, colic and lumbago

<i>Rumex obtusifolius</i> L.	Butter Dock	Polygonaceae	Whole plant	Helpful for problems of the menopause, liver and skin.
<i>Solanum nigrum</i> L.	Black night shade	Solanaceae	Berries and shoots	Plant pacifies vitiated thridosas, swellings, cough, asthma, arthritis, inflammation and skin diseases, plant is a proven anti cancerous drug.
<i>Solanum xanthocarpum</i>	Indian solanum	Solanaceae	Whole plant	Cure skin diseases, worm infestations, dental caries, inflammations, arthritis, colic, flatulence, rheumatoid arthritis, cough, fever, asthma, bronchitis, amenorrhea, low back pain, hemorrhoids, epilepsy and kidney stones.
<i>Sonchus oleraceus</i> L.	Sow thistle	Compositae	Whole plant	Used to stimulate menstrual flow, alter liver function, stimulate fluid elimination, stall defecation, and to combat cancer, warts, inflammation and fever.
<i>Tabernaemontana divaricata</i> L.	Cape jasmine	Apocynaceae	Root, Flowers & Latex.	Used to cure epilepsy, paralysis, blood and eye diseases, headache, skin diseases, itching, and arthritis
<i>Thevetia nerifolia</i> ross	Yellow oleander	Apocynaceae	Bark and leaves	Used to regulate menstrual cycle, emetics, laxatives and cure cough, bronchitis, renal and skin disease
<i>Thuja orientalis</i> L.	Oriental thuja	Cupressaceae	Whole plant	Treat burns, cold, cough, dysentery, fever, malaria and inflammation, Antiviral, anticarcinogenic, expectorant, decongestant, diuretic
<i>Vetiveria zizanioides</i> L. Nash	Vetiviera	Poaceae	Leaves and stem	Cure burning sensation, hyperdipsia, ulcer, skin diseases, vomiting nausea, flatulence, dyspepsia, colic, cough, fever, low back pain, headache and general debility
<i>Vinca rosea</i> L.	Periwinkle	Apocynaceae	leaves and flowers	Useful in the diabetes, menorrhoea, heart disease and cancer
<i>Withania somnifera</i> L.	Ashwagandha	Solanaceae	Root and leaves	Helpful in stress, weakness, tissue deficiency, the elderly, overwork, lack of sleep, nervous exhaustion, sexual debility, problems of old age, loss of memory, loss of muscular energy, insomnia, weak eyes, cough, infertility, glandular swelling.
<i>Zizyphus nummularia</i> (Burm.F.)	Wild jujube	Rhamnaceae	Leaves , fruits	Used in treatment of colds, mental retardation, treating diarrhea, dysentery, scabies, skin disease and colic.



Figure.1. Geographical location of Bhiwani Sub-division and study area

REFERENCES

1. Dery BB, Otsyina R. The 10 priority medicinal trees of Shinyanga, Tanzania. *Agroforestry Today* 2000; 12 (1):9-10.
2. Lingaiah M, Nagaraja RP. An ethnobotanical survey of medicinal plants used by traditional healers of Adilabad district, Andhra Pradesh, India. *Biolife* 2013; 1(1):17-23.
3. Ampitan TA. Ethnobotanical survey of medicinal plants in Biu local government area of Borno state, Nigeria. *Comprehensive Journal of Herbs and Medicinal Plants* 2013; 2(1):7-11.
4. Durmuskahya C, Oztork M. Ethnobotanical survey of medicinal plants used for the treatment of diabetes in Manisa, Turkey. *Sains Malaysiana* 2013; 42(10):1431-1438.
5. Nyamanga PA et al. The socio-cultural context and practical implications of ethnoveterinary medical pluralism in Western Kenya. *Agricultural Human Values* 2008; 25:513-527.
6. Motlhanka DMT et al. Antioxidant activity of water and ethanol extracts from roots of *Cassine transvaalensis* Burt-Davy from Botswana. *Planta Medica* 2006; 72:1001.
7. Rana MP et al. Ethno-medicinal plants use by the Manipuri tribal community in Bangladesh. *J Forestry Res* 2010; 21:85-92.
8. Lokho K, Narasimhan D. Ethnobotany of Mao-Naga Tribe of Manipur, India. *Pleione* 2013; 7(2):314-324.