

SURVEY OF RURAL AREAS OF JAINAGAR BLOCK OF MADHUBANI DISTRICT FOR THE MEDICINAL PLANTS USED BY THE LOCAL PEOPLE

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ABSTRACT

In the present study attempts were made to gather information regarding traditional use of medicinal plants by the people of remote areas of Indo-Nepal boarder adjacent to Madhubani district of Bihar, by visiting the villages and interacting with them. Information's regarding use of different parts; of selected medicinal plants to cure different diseases were collected from the local informers, different traditional health practitioners from different localities of the areas. Attempts were also made to collect data regarding parts of the medical plants used, dose of the specific parts, methods of administration etc. Information were gathered regarding the distribution, seasons of growth, flowering, seed setting etc. for the those medicinal plants which are still growing in wild habitat. Altogether, 12 medicinal plants were commonly used by the villagers such as *Abrus precatorium*, *Bacopa monnieri*, *Cassia occidentalis*, *Cassia torra*, *Coccinia indica*, *Delonix regia*, *Momordica charantia*, *Moringa olefera*, *Tamarindus* spp., *Tinospora* spp., *Trigonella* Spp. etc. These plants were used to treat seasonal fevers, Malaria, diabetes, gastrointestinal problems, liver, kidney and heart diseases, asthma, bacterial infections, anxiety and depression, skin diseases, Arthritis, inflammations, etc. They do use extract of such plants as repellent ,as antifertility agent and memory enhancer.

KEYWORDS: Traditional Uses, Medicinal Plants, Memory Enhancer, Diabetes, Antifertility Agent, Arthritis

Use of selected plants to cure different diseases might have developed along with our civilization. Even today rural people in the remote area in our localities more than 70% depends on this traditional medicines prepared from different parts of these plants now called as medicinal plants. The ethnic people residing in different parts of our country depends on wild plants to meet their basic requirements and all the ethnic communities have their own pool of secret ethnomedicinal and ethno-pharmacological knowledge about the plants available in their surroundings, which has been serving rural people with its superiority (Gritto *et al*; 2015). Traditional medicines also known as indigenous or folk medicine comprises knowledge systems that developed over generations within various societies before the era of modern medicine. World Health Organization (WHO, 2003) however, defined traditional medicine as the health practices, approaches, knowledge, and beliefs incorporation plant, animals, and mineral based medicines, spiritual therapies, manual techniques and exercises applied singularly or in combination to treat, diagnose and prevent illness or maintain well-being. Even today the application of different plant parts to treat a particular disease is not available as a recorded document in the rural areas. The knowledge is being transmitted orally from one generation to other. The practitioners keep the secret confined to their family members.

Herbal medicines have attracted people all over the world because there is no side effect like the synthetic

medicines. Even in developed countries, doctors are prescribing plant based medicine. Medicinal plants have become a very fertile field of research for the scientists. They are extracting the secondary metabolites from different parts of such plants and through *in vitro* experiments; they are providing evidence for the disease control which our Vaidya are using without knowing the chemical ingredients of the medicinal plants. We get lot of references regarding the above statements. Some of them are being mentioned here such as, Khare *et al*; (1997); Puri *et al*; (2002); Grover and Yadav (2004); Maiti *et al*; (2004); Patil *et al*; (2004); BAjpai *et al*; (2005); Beloin *et al*; (2005); Maittal *et al*; (2007); Agarwal and Mehta (2008); Hussain *et al*; (2008); Pathak *et al*; (2008); Ajay (2009); Dhanashekran *et al*; (2009); Jahan *et al*; (2009); Arya *et al*; (2010); Das *et al*; (2010); Jain *et al*; (2010); Prabhu *et al*; (2011); Saadabi and Abu (2011); Verma and Srivastva (2011); Saba *et al*; (2012); Ghosh and Roy (2013); Maria Jency rani *et al*; (2013); Shukla *et al*; (2013);

Chandrasekar and Sharma (2014); Sharma *et al*; (2015); Ahmad *et al*; (2016); Manikanda Selvi *et al*; (2016) etc. Keeping these ideas in mind present work was done to gather the hidden information from rural people of Madhubani district.

MATERIALS AND METHODS

Madhubani is one of the district of Bihar. It is situated adjacent to Indo-Nepal boarder in North. Its location that is the latitude 26.34788N and longitude

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86.0718 E with elevation of 194 feet. Because some blocks are just situated near the boundary, a mixed culture and vegetations are found. The villagers of Nepal and India have different relations with each others. In the present study selected villages of Jainagar were surveyed and the information regarding use of common medicinal plants was gathered.

During the study periods Kaviraj, Vaidya and other skilled persons whose family history was heard by the villagers that they do practice for herbal treatment were contacted. Similarly, local people in general and some female practitioners in particular were interviewed with the help of village informer.

During this interaction the educational qualification and experience on use of traditional medicinal plants were also discussed. In this way the information on different species of plant was mainly gathered from the common people as well practitioners in the remote areas of the block. Some females had more information about the utility of local herbs in curing different diseases. Information regarding the medicinal plants, parts used, mode of preparation dose used for the treatments was noted. Plants with their botanical names were arranged alphabetically and their parts and used for curing diseases have been describe in results and observation.

Abrus precatorius

This plant is a wild species of *Fabaceae* which is perennial, with long pinnate leaves. Its common name is 'Ratti'. Due to bright colour of the seeds local females use it for rosary. The weight of the seeds is constant. It is used in weighing gold. 96 seeds mean 96 ratti equivalent to 1 tola or 11.6 grams.

Seeds are roasted, powdered and either used alone or with other plant to cure, diabetes, cure malaria, for the control of diabetes, they prepare leaf extract and administer the affected people one tea spoon twice a day. Paste of seeds is applied externally in case of stiff shoulders joint, paralysis. In case of white leprosy, paste containing seeds of *Abrus precatorius* and roots of *Plumbago* is applied externally, good results.

Some local practitioners said that decoction of leaves is also used as an expectorant, laxative and vermifuge. They also use it to cure migraine. It is beneficial in dysentery, diarrhoea, and in curing bacterial infections. Decoctions of leaves and seeds are also being used to cure malaria. Some vaidya informed that the decoctions of leaves and seeds are being used as antifertility agent. Even in case of tetanus, vaidya advice

to take decoction of leaves and roots. Aqueous extract of root is used to cure cough. Pastes of roots are used to cure jaundice, hepatitis and even for abortion. It is also administered to cure diarrhoea, heart and kidney diseases.

Albizia lebbek

Common name 'Siris' belongs to family *Fabaceae*, is a wild species English common name is Woman's tongue. Plant body is a tree, which may be 20-32 m tall and 60-110 cm in diameter. Leaves are bipinnate, flowers white, pod 15-30 cm long and 2.5-5.0 cm wide.

After interaction with the local people it was noted that this plant bears immense medicinal value and are being used to cure different diseases. Extract of leaves are being used to cure night blindness. Few drops are added in eyes twice daily. The extract is also used to cure ulcer, cough and cold, syphilis and respiratory troubles leaf juice is also beneficial in curing ear pain. For this few drops are added in the ear having pain. Fried leaves with honey are taken to cure cough. When leaf juice is taken with honey and water it cures urinary problems. Leaf juice along with extract of flowers is taken to cure the disease caused by intestinal worms. It is also used to cure dysentery.

Seeds

Powdered seeds are taken to cure diarrhoea, dysentery, piles, and leucorrhoea. The paste prepared from the seeds is applied around the affected area which cures the piles and warts in piles.

Paste is also beneficial in leprosy, paralysis and other genital diseases. Oil extracted from the seeds is applied externally to cure leucoderma.

Bark

Decoction of bark is used for treatment of dysentery, diarrhoea, and piles. It is also beneficial in skin diseases. It is also advised in case of blood disease, skin diseases, excessive perspiration, leucoderma, toothache.

Flower

Paste of flowers applied as poultice to boils. Decoction of flower along with black pepper juice is taken orally in case of snake bites. Fragrance of flower is used in case of migraine & headache.

***Butea monosperma*(Linn)**

Butea monosperma belongs to the family *Fabaceae*, is an ornamental tree. It is found in wild habitat as well as in cultivated condition. Common name

is Palas, while in English it is called Flame of the Forest because of the bright red colour of the flower; as at that time there is complete defoliation of the tree and only flowers are there. Local people said that we worship the tree because of its religious importance. In addition they revealed it's used in traditional medicine.

Treatment of Diabetes

One vaidya revealed that we collect flowers of the plant during first half of the lunar month. They are cleaned and dried. Now first day one flower is soaked in cup of water over night, in the morning the juice is obtained after squeezing into water. Then it is given to a person suffering from diabetes. Second two flowers, third day three fourth day four and on fifth day five flowers are soaked and juice extracted is taken in the morning. This is again repeated from one flower up to 45 days. Then blood sugar is checked on the end. Blood sugar becomes normal.

One person reported that if a white shirt is soaked in the extract of flowers of *Butea* till it becomes red. This shirt is made to the kid a bed time. Gradually anaemia of the kid is cured.

In Pain Due to Kidney Stone

Paste of flowers of *Butea monosperma* is prepared. It is taken in a white cloth (cotton) and used as a hot bag and placed over skin near kidney. Person gets relief from the pain. It also helps in easy release of urine.

In case of stomach disorder, cough and cold, 6-8 petiole is chewed and juice is taken early in the morning in empty stomach.

Diabetes

Vaidaya prescribe to take powder of dried leaves tow tea spoon daily for at least one month, with water. This causes reduction in blood sugar level.

Fresh leaves are taken, washed properly and juice is extracted. Similarly, juice of flowers is also extracted. Now four teaspoon leaf extract and half teaspoon of flower extract are mixed together and taken at night for 2 to 3 months. This cures irregular bleeding during menstruation.

Snake Bite

Roots are dried and powdered. If this powder, one teaspoon full is mixed with honey and given to the person. It acts as antidote for snake bite.

Paste of tender stem reduces goiter. Two three seeds are roasted and powdered. This powder is taken to

cure intestinal worms. Seeds crushed in milk are advised to take in kidney stone. Thus all parts of the plants are being used in the traditional medicine by the rural people.

Cassia occidentalis

This plant is an annual herbs found during rainy season. It is generally found in wild habitat, mostly on the road side or in the barren lands. Local people called it jhunjhunia because ripe fruits sound like a jhun jhuna toy.

Different parts such as leaves, tender stem, roots and seeds are used by the rural people to treat different diseases. It was informed by the local people that paste and decoction of leaves are used for the treatment of different diseases. Paste of leaves along with calcium hydroxide is applied to abscesses for quick opening and release of pus. The paste of leaves is externally used to cure, wounds, sores, ring worms and other skin diseases. Decoction of leaves is used to cure typhoid, fever, tuberculosis, to cure leprosy and to treat diabetes. Paste of leaves is used to cure insect bites, snake bite and scorpion sting. It is also advised in rheumatic disease. Powder of roots and seeds are used as laxative. It is also given in case of chicken pox, and to expel worms from the intestine.

It was narrated that it is more effective in case of hepatitis. It was noted that decoction of roots of *Cassia occidentalis* with black pepper was given to cure filarial disease. Therefore, all the parts are being used in the traditional medicines, to cure different diseases.

Cassia torra

This plant is an annual herb found during rainy season along the road sides and on the bare lands. It belongs to family *Fabaceae*. Wherever they grow, they are in large population and the plants can be easily recognized due to its luster green leaves and showing drooping tendency in the evening. These leaves become normal in the morning. This happens due to variation in turgor pressure of the leaves. Common name differed from one place to other. It was found that local people called it chhoti jhun jhunia. Different parts of these plants are being used to cure different ailments by the local vaidya and village practitioners. Different parts of the plants are being used by the local people for the treatment of different diseases such as:

Leaves

Paste prepared from healthy leaves of *Cassia torra* is used for the treatment of Ringworm and other skin diseases.

Decoction of leaves one tea spoon full is taken in empty stomach to kill the intestinal worms. Paste of leaves is used on the part of the body affected by paralysis. Its decoction is also given to control vomiting as well as stomachache. The paste is also used to cure ulcer, insect bites. Decoction is also used to treat eye diseases. Roots are dried and powdered. 1 teaspoon powder is taken twice with water to cure the worm's infection. Powder of roasted seeds is taken with leaf decoction. It cures conjunctivitis.

Roasted seeds are powdered and that is used to cure liver diseases, edema, & constipation. Paste of roots mixed with lemon juice is externally applied to cure ring worm. Decoction of fruits is used for the treatment of fever.

Coccinia indica

It belongs to family *Cucurbitaceae*, is a cultivated plant in this area. General use of the fruits is in vegetable but it bears several medicinal properties due to which its different parts are being used in the traditional medicine for the treatment of different diseases. Common name is Kundri.

Treatment of Diabetes

Local practitioners use the extracts of fruits one tea spoon twice daily for 15 days. The blood sugar level is checked and the above dose is repeated. They reported that blood sugar level comes down like the synthetic drug. Similarly, extracts of whole plant in dried form was also given which was beneficial in controlling the diabetes like insulin.

Leaf extracts are administered orally one tea spoon full twice a day to control the liver diseases. Local people revealed that it is much beneficial in case of jaundice. Leaf extract and paste are used to cure leprosy, skin eruption, burns and earache. Luke warm leaf extract is given to control fever. Leaf extract is also given to cure Gonorrhoea.

Extract of tender stem is used as an expectorant. It is also beneficial in Asthma and urinary tract infection. Root extract and paste are used to cure diabetes, joint pain, urinary tract infection, and different skin disease.

Tender leaves are also used as vegetable to cure diabetes.

Delonix regia

It belongs to family *Fabaceae* (*Caesalpinaceae*) is an ornamental tree, found in cultivated and wild habitat. Common name is Gulmohar. Leaves stem bark,

seeds, flowers all are being used in traditional medicines. Local people also use these parts for the treatments of different diseases.

Treatment of Diabetes

The Vaidya and local people informed that juice of leaves, and tender fruit are taken daily in the empty stomach to cure diabetes. Half cup juice is advised to take daily. The blood sugar is tested after 15 days. Above extracts are also beneficial in case of diarrhoea and dysentery, liver problems. It is also taken as to cure rheumatic problems.

Paste of bark is used as a poultice to reduce edema. Extracts of flowers is used to cure round worm disease. Paste of leaves is used to cure headache. It is place on forehead and allowed to dry.

In certain areas villagers were given the extract of tender leaves to cure kidney and liver diseases.

Powder of ripe fruits along with powder of roots of *Asparagus* is given to female after child birth. This promotes contraction of pelvic girdle and other reproductive parts.

Momordica charantia

It is a cultivated plant of the family *Cucurbitaceae*. It is a climber and these days they are being cultivated in different seasons. The fruit size differs as per the variety. Fruits are mainly used as vegetable, but rural people; even the urban people are taking its juice to reduce blood sugar.

For the treatment of diabetes, half cup of fruit juice is taken early in the morning in empty stomach. Some of the villagers informed that even extract of roots are more beneficial in reducing the level of blood sugar.

Leaf juice is also beneficial for different problems related with intestine. The decoction of young stem is used to cure different skin diseases.

One of female in the village who is also doing practice of herbal treatment reported that seeds are fried, ground to powder and given to female who is to deliver a baby. This promotes easy delivery and less pain. She also revealed that if it is taken at the early stage of pregnancy abortion taken place in most of the cases. It is also used to cure the painful menstruation. Fruits and root's juice are also used to cure malaria. Even they use the extracts of whole plants to cure madness. However, percentage of people or practitioners confirmed its use to cure diabetes than any other diseases in general.

Moringa oleifera

It is a perennial small tree and belongs to the family *Moringaceae*. This plant produces fruits which long ridged and usually used as vegetable, but it has enormous medicinal importance.

Treatment of Diabetes

Decoction or juices of tender leaves are taken daily half cup to reduce blood sugar. Even the fruit juice is also beneficial.

Local people do take the leaf juice to cure several problems of liver. Even the extract of barks taken from the roots is also beneficial in case of liver diseases.

Local vaidya are advising to take juice of leaves. Roots to cure disease related with heart. They also use it to control diarrhoea, and other bacterial disease. Even in asthma patient it is beneficial. Local people reported that regular use of tender fruits and leaves in vegetable, eye sight is cured usually.

Moringa leaves are given to mother to induce lactation after the birth of her baby. Even its regular use reduces weight. Its regular use reduces cholesterol. Females in certain villages use the extract of leaves for different skin disease and improve the health of the hairs. A paste is used to induce hair follicles. Similarly, its application on face reduces ache on the face. *Moringa* leaves are also given as brain tonic. Eating of *Moringa* leaves regularly cures migraine and headaches.

Tinospora cordifolia

Commonly called as 'Giloy' or 'Guduch', belongs to family *Menispermaceae* is a perennial climber, found in the wild habitat. Based on its leaf, stem structure and presence of aerial assimilatory roots, the plant can be easily recognized, growing on another tree. Here male flowers are clustered while the female is solitary. But it is propagated through stem cutting. This plant has become so common that even lay man indicated its presence on a tree on which it was growing. One Vaidya said that this plant has the rejuvenating potential and helps in the protection of the denaturing cells and organs in human being.

Cure of Diabetes

Local practitioner said that if the extract of mature stem is taken daily in the morning, the blood sugar is reduced to normal level. They said that a piece of mature stem 1.5 to 2.0 inch is ruptured with the help of hammer and placed in water in a cup. In the morning the filtrate is taken regularly.

In addition the juice of *Tinospora cordifolia* is also used to cure fever by the local people. It is also beneficial in skin diseases. It cures different skin diseases, syphilis, and Malaria. One Vaidya said that the juice of Giloy acts as an antidote to snake bite. It also cures chronic cough, dysentery, fever, headache, and urinary disease. Here the juice is extracted by crushing stem and roots in water and filtrate is used as traditional medicine.

Tamarindus indica

It is a perennial woody tree with much branching system, belongs to family *Fabaceae* (*Caesalpiniaceae*). Common name is 'Imli'. It may be cultivated but mostly they are found in wild habitat. The fruit is used for the preparation of Chatnee, and in other food item but it also bears medicinal importance.

Local people reported that paste prepared from the leaves and pulps of the fruits are used externally to cure swollen joints. It reduces inflammation and pain. The juice extracted from the leaves and fruit pulp is either taken with water or used for gargle. This provides relief from pain and discomfort in the throat.

Decoction of bark of fresh stem is taken for the treatment of stomach disorder, such as loose motion. It is also beneficial in Jaundice and general body pain. The decoction of fruits and leaves are also beneficial in case of diabetes. Extract of seeds is also given for this.

Decoction of leaves is also used to cure dysentery and diabetes, to cure worm diseases.

Fruit pulp is also taken to reduce weight. Seed extract is also used as antidote in case of snake bite. The extract is also given to cure the liver diseases. Seeds are roasted and grind to powder. One tea spoon full is given twice that helped to cure liver problem. Decoction of the leaves is used to clean the wound regularly. This causes early healing of the wound. Paste of bark is also beneficial in healing of the wound. Leaf extract is also given to stop vomiting. It is also beneficial in curing malarial fever.

***Trigonella foenum-graecum* L.**

The plant belongs to family *Fabaceae*, is commonly called as Methi by the local people. This is annual herbs, usually cultivated during winter. Usually green leaves are used as vegetable. However, it bears several medicinal values. Due to this local people do use the plant parts and its seeds for the treatment of different diseases.

Used to Control Diabetes

The seeds are soaked in cup of water overnight. Next day early in the morning it is filtered and the filtrate is taken in the empty stomach. Above soaked seeds are placed on moist cloths for germination. Germinated seeds are then eaten raw. It reduces blood cholesterol level also. Seed extract is also used as expectorant and a laxative. It kills the intestinal worms and cures intestinal inflammation.

It is given to mother after birth of a baby. This promotes lactation in the mother. It cures digestive problems and acts as a tonic for heart. It also improves immunity if taken regularly. It is beneficial in liver diseases.

Leaf extract is also given to reduce abdominal cramps during diarrhoea. It extracted from the seeds is given to cure intestinal problems, such as ulcer, etc.

DISCUSSION

With the onset of industrialization and progressive development, human's reliability on machine has increased tremendously. But all this has come up with a heavy cost of pollution and sedentary life style which resulted in rise in incidences of diseases. In recent days, no doubt synthetic medicines have over shadow the traditional medicine, but due to its side even in developed countries, herbal medicines are preferred because it has no side effects. The rural people used the herbal medicine without knowing the chemical natures of the secondary metabolites present in it. Secondly there are several reports that the secondary metabolites present among different medicinal plants are responsible for the action against different diseases. May be diabetes, dysentery, diarrhoea, cough and cold, liver diseases, headache, migraine, or other diseases for which the herbal medicines are being used. These results are based on *in vitro* experiments on rats and other animals.

Works of some of the workers are being mentioned here, such as, Virdia *et al*; (2003); Grower and Yadav (2004); Patil *et al*; (2004); Shetty *et al*; (2005); Maittal *et al*; (2007); Nam and Choi (2008); Zhu *et al*; (2008); Rao *et al*; (2008); Nepolean *et al*; (2009); Kumar *et al*; (2010); Sini *et al*; (2011); Verma and Srivastva (2011); Tanimu and Wadil (2012); Vijayalakshami rani *et al*; (2013); Das *et al*; (2014); Soni and Limaye (2015); Suhane *et al*; (2016) etc. These workers have isolated the chemical compounds from leaf, stem, bark, flowers, seed and roots and their chemical natures have been

determined. Their *in vitro* impact support the herbal treatments used by the Vaidya, and Village practitioners.

CONCLUSION

Herbal treatments are gaining popularity among the civilized people along with the rural people. The Ayurvedic medicines are now running paralleled with the allopathic medicine. Along with Vaidya several Dharma Guru are producing Ayurvedic medicines at commercial scale. But even today there are needs for scientific authenticity of the specific chemicals and its amount which are responsible of the action in the Ayurvedic drugs.

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