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## **Moringa-(Drumsticks) - The Magical Plant, its Importance and Known Side Effects**

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### **ABSTRACT**

India is a country of diversity, here nature is giving abundance to human being, though because of lack of knowledge we are deprived of the nature's wealth. Moringa/ drumstick/ shigru is one of the boon for man. It contains loads of vitamins, minerals and vital nutrients, it is available everywhere and can be used as a medicine to cure diseases of digestive system, nervous system, skin, eyes, etc. Recent research shows that it is helpful to cure, lung, liver and ovarian cancer, it has good result in dyslipidemia, diabetes, worms etc. In large quantity its root extract may cause loose motions, nausea, and neurological symptoms. It may be teratogenic for foetus, as it crosses placental barrier. Compilation of all sort of recent research about shigru and its known beneficial effects as per Ayurveda text will be helpful for society, so studied about moringa/ shigru's as per Ayurveda, and modern research.

### **KEYWORDS**

*Shigru, Moringa, Malnutrition, Cancer, Ayurveda*



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## INTRODUCTION

India has a rich heritage of herbs, plants, vegetables that have good medicinal and nutritional value; in spite of that the population is facing nutritional deficiency. To conquer this malnutrition, artificially manufactured vitamins, minerals and antioxidants are used, which are derived from inorganic source. If we try to use natural source of these vital ingredients, it will have better absorption and acceptability in body. This will help us in both ways, it will reduce economic burden of our society, and it will fulfill our daily requirement, by this way, give rise to healthy society<sup>5</sup>.

Moringa/*shigru* is such a plant that is available everywhere in India, a cheap herb, each and every part of plant is useful. Moringa oleifera is a plant that is often called the “drumstick tree”, “the miracle tree”, “the ben oil tree”, or “the horseradish tree” used for centuries due to its medicinal properties and health benefits<sup>5</sup>. *Moringa oleifera* is a tree that grows in tropical and sub-tropical environments such as India, Oceania, Latin America, Africa, and Asia. It has good commercial value, if farmers start to cultivate it on large scale. Its leaves, pods, seed, bark, roots, oil, all of them has great medicinal value. Moringa contains mega load of antioxidants, minerals, protein, and essential fiber and have

cleansing property. Its bark yields a coarse fiber which is utilized in preparing mats, paper and cordage. Its oil is almost devoid of odor and flavor, saponifies slowly and does not turn rancid, also popular by the name ben oil, it is one of the best lubricant for fine machinery and is highly valued by watch makers, and perfumers for its great power of absorbing and retaining even the most fugitive odors. Therefore it was decided to study this magical herb<sup>5,12</sup>.

## MATERIALS AND METHODS

Moringa, is described in detail in ancient texts of Ayurveda. Also lots of research work done by scientist all over the world, about moringa. The magical plant ‘moringa’, in Marathi it is called as ‘*shevga*’, in Sanskrit it is called as ‘*shigru*’. Its botanical name is *Moringa oleifera*, and in English it is popular with the name drum stick. In Sanskrit it has very nice synonyms like, *shobhanjan* means beautiful tree, *harit shak*- green leaves, *shakpatra*-vegetable leaves, *supatrak*- nice leaves, *komalpatrak*-tender leaves, *laghupatr*-small leaves, *tikshngandhak*- strong smell, *dansha*, *updanshaksham*- can prepare curry or vegetable from it, *mochak*- it is capable to free you from diseases etc<sup>10</sup>As per Bhavprakash, there are two types of *Shigru*, one is with white beans, pungent taste



found everywhere in India, other is reddish white beans, sweet taste found only in Malda, Rajputana and Sindh, its latin name is *Morina concanensis*<sup>10</sup>. The subject to discuss is only about pungent *shigru*, which we found everywhere in India, it is a beautiful tree as shown in figure no 1.

As per Ayurveda its properties are light for digestion, dry and strong by nature, its taste is bitter, after effect is also bitter and it is hot in potency. This whole plant has great medicinal value, its leaves, fruit, seed, bark, oil, root all are useful for medicinal purpose<sup>12</sup>. Moringa has power to supply sustainable energy, lower blood pressure and aid in adrenal support, moringa acts as a coagulant, attaching itself to harmful material and toxins within the body flushing them out quiet rapidly<sup>9</sup>.



**Fig 1** (a) *Shigru* tree, (b) *Shigru* leaves and its powder

**Nutrition value of *shigru***<sup>6,8</sup> Rich source of vitamins, micronutrients, antioxidants, proteins, essential amino acids etc.



**Fig 2** *Shigru* leaves and its contents

Table no1 and 2 shows its rich source with its comparison with comparable rich source of fruits, nuts and vegetables, in very small quantity also it gives us proper nourishment. It can be used in powder or capsule form as shown in figure 1 and 5.

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**Table 1** Vitamins, minerals, and contents in *shigru* leaves, its powder and pods<sup>9,12</sup>

Essentials	Per gram in fresh leaves	Per gram in powder	Pod mg
<b>Vitamin A</b>	6.8 mg (4 times carrot)	18.9 mg( 10 times carrot)	0.11
<b>Vitamin B</b>	423 mg	423 mg	
<b>Vitamin B1</b>	0.21 mg	2.64 mg	0.05
<b>Vitamin B2</b>	0.05 mg	20.5 mg	0.07
<b>Vitamin B3</b>	0.8 mg	8.2 mg	0.2
<b>Vitamin C</b>	220 mg(7 times oranges)	17.3 mg (1/2 times oranges)	120mg
<b>Vitamin E</b>	28mg(3 times of almond)	113 mg (12 times of almond)	
<b>Protein</b>	6.7mg(2 times of yogurt)	27.1mg(9times of yogurt)	2.3mg
<b>Carbohydrate</b>	13.2mg	38.2mg	3.7
<b>Calcium</b>	4.25mg(4 times of milk)	72.25 mg (17 times of milk)	
<b>Iron</b>	7.0 mg ( 3 times of spinach)	28.2 mg(25 times of spinach)	53
<b>Potassium</b>	25.9 mg( 3 times of banana)	132.4mg (14 times of banana)	259
<b>Magnesium</b>	2.4mg	36.8mg	2.4mg
<b>Phosphorus</b>	7 mg	20.4 mg	11mg
<b>Zinc</b>	0.16mg	3.29mg	
<b>Selenium</b>		0.09 mg	
<b>Fiber</b>	0.9 mg	19.9 mg	48 mg
<b>Fats</b>	1.7mg	2.3 mg	27.1 mg
<b>Water</b>	75%	7.2%	86.9%

*Some facts about its vitamin content*<sup>8</sup>

**Table 2** Comparison of vitamin A, C Calcium and Protein in its rich source and *Shigru* leaves

	Vitamin A	Vitamin C	Calcium	Proteins
<b>Fresh moringa leaves juice</b>	1cup	1 cup	1 cup	1 glass
<b>Egg</b>	9		20	2
<b>Sheep's liver</b>	50			
<b>Shelled almond</b>	1 cup		900 gram	
<b>Mutton</b>	16kg		3 kg	
<b>butter</b>	500 gram			
<b>Cow's milk</b>	80 cups			2.5 cup
<b>Orange</b>		6	8	
<b>apple</b>		8		
<b>banana</b>		16		
<b>grapes</b>		2.5 kg		
<b>lime</b>		6		
<b>mango</b>		20		
<b>watermelon</b>		7.5 kg		
<b>papaya</b>			7.5 kg	
<b>Chicken roast</b>			3 kg	100 gm
<b>Fish</b>				101 gm



Table 3: Medicinal uses of *shigru* / Moringa as per Ayurveda text

Authors	Properties, rasa, vipak, virya	Doshagnata Action on dhatu	Mode of action	Action on disease
<b>Bhavprakash</b>	Laxative, strong, light dry Sweet Pungent hot	Pitta increasing Kaphavata pacifying Shukra increasing Blood vitiating Meda reducing	Appetizer Digestive Burning Heart, eyes Strengthening Vishghna Critical disease cure	Vidradhi –cyst, abscess, all kinds of growths, oedema, anti-helminthic, gulmghna  Beej –seeds-good for eyes & headache, bad for shukra, anti-poisonous,
<b>Sushrut</b>	Tikshna, laghu, pungent pungent hot	Kaphavata pacifying		Krumi, kushtha, shirorog, Anti-diabetic
<b>Vagbhat</b>	pungent pungent hot	Vata,pitta, kapha, all together balencing	Eyes strengthening and in many eye disease cure	Ashmaripatan Vidradhihar All eye disease use with honey
<b>Dhanvantari nighantu<sup>13</sup></b>	Bitter Pungent hot	Kaphavata pacifying	Krumi, visha, anti-obesity Anti-inflammatory	Aamnashak, medoghna' vidradhi, pleeha-gulmahar

### Medicinal uses

Oil expressed from the seeds is used externally for relieving pain of joints in gout and acute arthritis, rheumatism. A decoction of root bark is recommended for ascites, enlarged liver or spleen and calculus affections. It is directed to be used as a poultice, plaster or decoction over inflamed part and it decreases swellings. The fresh juice of root bark is recommended for otalgia when poured in ear- karnpurana<sup>8, 10, 12</sup>.

Root of the young tree in small doses relieves intermittent fever, epilepsy, hysteria, palsy, chronic rheumatism,

dropsy, sore throat, dental caries pain, and articular pain, and tetanus, debility of nerves, paralysis, pustules, patches, leprosy, spleen enlargement and dyspepsia. Its spirit is successfully used in fainting, giddiness, and nervous debility, spasmodic affections of the bowels, hysteria and flatulence. Root is abortifacient<sup>8,2</sup>. Compiled study about Moringa by all Ayurveda scientist is shown in Table no 3. Leaves are used in catarrhal affections, dog bite and scurvy treatment<sup>5</sup>. Soup of leaves with salt, pepper, lime juice can be taken empty stomach as a tonic in malnutrition, anemia's, tuberculosis, asthma, seasonal



attacks of cold and bronchitis, premature aging, premature loss of strength and vigor, nervousness, functional sterility in males and females etc. also fresh leaves juice can be used with honey and coconut water is given to recover dehydration due to cholera, dysentery, colitis, jaundice etc<sup>8</sup>. We can use it in infants to grow healthy with strong bones, pure blood and develop high resistance against infection and malnutrition. Its regular use during pregnancy and lactation helps the mother to get extra calcium, iron, and vitamins useful to develop healthy baby and also helps to induce normal contraction<sup>12</sup>.

The fresh leaves juice with cucumber is effective medicine of scanty urination, constant burning in urethra, myxedema, toxemias of pregnancy, dropsy due to heart, liver, kidney disorders, hypertension, excessive thirst due to summer heat, diabetes, constipation, etc<sup>8</sup>. One tablespoon of fresh leaves juice if taken daily before going to bed, cures night blindness, weak memory, loss of smelling power, poor hearing. Take this juice with lime juice to cure vertigo, bleeding piles, epistaxis, hiccough, indigestion, morning sickness, mal-absorption syndrome etc.

Fresh leaf juice is instilled in eyes to cure fainting fits due to nervous debility, corneal ulcers, burning and itching in eyes, flickering and twitching of the eyelids,

falling of eye lashes, night blindness due to vitamin A deficiency etc. Juice instilled in nose is to cure syncope. Leaf juice mixed with equal quantity of radish leaf juice is applied over piles with good result. Leaf juice medicated oil is applied to cure scabies, rheumatism, sprains, and contusion<sup>8</sup>.

Pods are preventive against intestinal worms. Soup mixed with honey is useful in rheumatism, colds, impotency, small urinary stones, weakness of nerves, enlargement of liver and spleen, constipation etc. It is useful for paralysis, Bell's palsy, hemiparesis, it rectifies menstrual irregularities<sup>5,8,12</sup>.

Flowers are used as aphrodisiac, used in cold and swellings, diuretic and increases flow of bile, so it is digestive and is useful in asthma<sup>5</sup>.

#### *Pharmacological action<sup>5</sup>-*

Chopra and De in 1932, found that activity of its amorphous base is closely resembles adrenaline and ephedrine in its effects. This base thus belongs to sympathomimetic group of bases. It acts on sympathetic nerve endings all over the body producing rise of blood pressure, acceleration of heart beat and constriction of blood vessels, this action may be due to stimulation of sympathetic through myocardium may also be slightly stimulated. It also inhibits the tone and movements of the involuntary





muscle of the GI tract and the bronchiole. It produces slight diuresis on intravenous injection in animals, dilates pupils and is detoxicated by the liver. Very large dose depresses vasomotor nerve endings. This base differs from adrenaline in that it produces little or no rise in blood pressure after ergotoxine, whereas adrenaline produces a fall under similar conditions<sup>5</sup>.

#### *Different studies carried out about Moringa<sup>6</sup>*

The Moringa is ideal for obese people as well as for the malnourished. *Moringa olifeira* contains several phytochemicals, some of which are of high interest because of their medicinal value, it contains glucosinolates and isothiocyanates compounds.

#### *Malnutrition*

Moringa is an invaluable resource for combating malnutrition in developing countries. A nutritional biochemist from the Johns Hopkins School of Medicine stated in a commentary on Moringa: “*the nutritional properties of Moringa are now so well known that there seems to be little doubt of the substantial health benefit to be realized by consumption of Moringa leaf powder in situations where starvation is imminent*”<sup>7</sup>.”

In spite of moringa’s powerful nutritional profile, there exists incredible medicinal potential. Chemical compounds found in moringa have demonstrated several

beneficial biochemical activities; it is proven good for atherosclerosis and thereby helps heart patients. It has good antibacterial, antiviral activity. It is good source of antioxidants and has tumour-suppressive effect, thereby helps cancer patients.

#### *Anti- cancer action<sup>6</sup>*

A new study published in the journal *Oncology Letters* has followed up on previous research that demonstrated the therapeutic potential of water-soluble extracts of moringa leaf in treating various types of cancers, such as lung, breast, and skin cancers.

In this latest study, a team of Korean researchers looked at how water-soluble extracts of moringa leaf affected the viability of human liver and lung cancer cells in a series of elegant experiments.

The team of Korean researchers conducted their study to assess the effects of a water-soluble extract from moringa leaves on human liver and lung cancer cells.

The researchers began their study by testing several doses (0, 50, 100, 200, 300 or 400µ/ml) of a water-soluble moringa leaf extract on human liver cancer cells. They treated these cancer cells for two days with the moringa extract and observed a dose-dependent response in cancer cell death, with 96.7 percent of the cells exhibiting





evidence of cell death at the highest dose (400 $\mu$ /ml).

Next, the researchers looked at moringa's effects on inhibiting the growth of cancer cells. Similar to the above experiment, they treated the liver cancer cells for two days with various concentrations of moringa leaf extract. They found that relative to the cells that received no treatment, those treated with moringa were inhibited in their growth and this inhibition was also dose-dependent. In other words, the more moringa extract provided, the less the cells could grow — with up to 80 percent inhibition in the highest dose provided (200 $\mu$ /ul).

Further experimentation was conducted to detect and quantify the extent of cell death in liver cancer cells treated for two days with different concentrations of moringa leaf extract versus control cells that did not receive any treatment. Using a state-of-the-art cell measurement system, the researchers observed that around 55.4 percent of cells were in the early or late stages of cell death. The ratio of cell death was five times higher in the treated versus control cells at the highest concentration administered (300 $\mu$ /ml).

Thus far, all experiments were conducted *in vitro*, or in other words, in a cell-culture system in a dish. To assess if orally administered moringa extract could prevent

cancer cell progression in a living organism, the researchers turned to a special laboratory strain of mice that are ideal for these testing purposes. For these experiments, the researchers adhered to internationally recognized guidelines on animal welfare.

The researchers implanted the mice with two types of cancer cells, human liver cancer and human lung cancer cells. The cells were inserted into a special type of fiber, known as a hollow fiber, and these fibers were surgically implanted subcutaneously into the mice. Two days after surgery, the mice were given different doses of moringa leaf extract as well as a chemotherapy drug called doxorubicin for five days, whereupon the fibers were collected and analyzed. Both the liver and lung cancer cells showed reduced viability and the level of this reduction coincided with what was observed in the cell culture experiments. In other words, the orally administered moringa extract was able to successfully inhibit cancer cell proliferation in a living organism. Furthermore, in the case of the liver cancer cells, moringa extract was more effective than doxorubicin (a common chemotherapy drug)<sup>11</sup>.

There is a 10-fold to 20-fold increase in the follicle-stimulating hormone (FSH) level and a 3-fold to 5-fold increase in the luteinizing hormone (LH) levels in the



blood during menopause. Both hormones are known carcinogens for ovarian cancer. A study from Kolkata found that the moringa plant contains a unique combination of isothiocyanate and glucosinolates which can effectively treat ovarian cancer by inducing apoptosis (cell death) of cancer cells. This plant not only kills the cancer cells in ovary, but has also been found to have anti-tumor activity in cancers of the lung, breast, skin, esophagus, and pancreas<sup>6</sup>.

#### *Dyslipidemia*<sup>6</sup>

Human studies looking for potential anti-dyslipidemic effect of *M. oleifera*, found a significant fall in the plasma levels and almost 9 percent increase (not very significant) in HDL cholesterol levels with *M. oleifera* dietary leaves.

#### *Anti-diabetic action*<sup>6</sup>

A number of human studies have shown that moringa extracts or moringa as vegetable could significantly reduce fasting plasma glucose (FPG) levels and their post-prandial (PPPG) levels. One study went as far as to say that the hypoglycemic effect of the plant extract was comparable to that of the anti-diabetic drug Glipizide administered at 2.5 mg per kg of body weight.

#### *Adjuvant property*<sup>6</sup>

Moringa is known to enhance bioactivity of commonly used antibiotics such as

rifampicin, ampicillin, and tetracycline against gram-positive and gram-negative bacteria and other anti-fungal drugs.

#### *Some known side effects of moringa*<sup>7</sup>

- Avoid eating the root of the moringa tree. It contains alkaloid *spirochin*, which is a potential neuro-paralytic toxin and can cause paralysis and death.
- Leaves of moringa have laxative properties. When eaten in large quantities they may cause stomach upset, heart burn, gaseous distension, and diarrhea.
- Moringa when taken directly with water or raw may cause heart burns. It is better to cook it.
- The taste of moringa is not too pleasant. If you are using it for the first time, it may produce a gag reflex. It may also cause nausea when consumed in large quantities. To avoid this we can use its capsule preparation as shown in figure 3.
- The chemicals found in the roots, flowers and the bark could cause uterine contraction in pregnant women and may increase the risk of a miscarriage.
- Avoid moringa if breast feeding, since the chemicals may not be safe for the infants.
- Do not take moringa if you are on blood thinning medications such as warfarin.



- Studies have shown that moringa can also cause disorders affecting the blood such as gum bleeding, petechiae (red dots by bleeding under the skin because of broken blood vessels), lower number of blood platelets, and decrease in white blood cell count

A study carried out by medical practitioners in the Departments of Anatomy and Surgery<sup>8</sup>, University of Ibadan, used 20 pregnant rats of Wistar strain. Prof. Adefolarin Malomo, a Consultant Neurosurgeon, who conducted the study with other doctors, including Dr Foluso Atiba and Dr Innocent Imosemi, said that the study, entitled ***“Noxious effect of Moringa oleifera leaf extracts on the developing brain, morphology and behaviour of Wistar rat”***.

The study warned that the consumption of Moringa oleifera otherwise known as “moringa” could affect the body, brain and cerebral of newborns.

Maloma said that the pregnant rats used in the study were divided into two groups of 10 animals per group<sup>11</sup>.

“Group one animals received distilled water and served as control animals, while group two animals received 200 mg/kg body weight of Moringa oleifera leaf extract orally.

“All the animals were provided with rat cubes and water and libitum during pregnancy and lactation.

“After birth, some congenital malformations such as meromelia, phocomelia and amelia were observed in the pups of Moringa oleifera group only.

“The behaviour of the rats was significantly worse in the Moringa oleifera group, especially in the area of motor function,” he said.

“This study suggests that M. Oleifera may be embryotoxic as well as teratogenic in animals,” he said.

These are few adverse results I found in few papers, but as sample size is very less, it can be confirmed only after detail animal study with significant sample size.

#### *Chemical composition<sup>5</sup>*

The preliminary extraction with solvent gives following composition,

Petroleum ether 0.71%

Sulphuric ether 6.47%

Chloroform 0.68%

Absolute alcohol-2.17%

Crystalline molecule is obtained from its decoction has high melting point- up to 254.2 degree, and that from flowers 70 degree.

Rao and George [1949] worked on alcoholic extract of the fresh root of plant found that the extract exhibited strong antibiotic activity. They isolated the



substance and gave name 'plergospermin, it is potent antibiotic at PH 5 in a concentration of 5 parts per million against staphylococcus aureus. It is active against many gram positive and gram negative organisms. The presence of cysteine did not reduce the antibacterial activity and in the presence of nucleic acid (0.1%) the activity was increased. Good antifungal activity was also exhibited by it.

## DISCUSSION

Moringa is a magical herb. You can call it as a '*kalpvriksha*', means the herb which helps you with maximum it can. Each and every part of this tree is beneficial for human being. It is cost effective, available all over India, and gives all in one benefit. Its properties as discussed in Ayurveda and modern text are as as shown in table no 4 -

**Table 4** Moringa tree parts, its taste, after effect- potency, action on *dosha* and disease treated by it

Moringa	taste	After effect	potency	Action on dosha,tissue,organ	action	Disease
Leaves <sup>1,2,134</sup>	bitter	pungent	hot	Kaphavata pacifying Shukra increasing, gives strength to eyes and heart	Ignites digestive fire, taste improving, dry, laxative	Spleen disease, edema, abscess, wound, all disease curing, dog bite, scurvy
Bark <sup>2</sup>	bitter		hot	Gives strength to eyes		Critical disease curable
Seed <sup>2,3</sup>	bitter	pungent	hot	Kapha vata pacifying, shukra decreasing	Strong, anti-poisonous	Headache with pradhama nasya
Beans <sup>2,4</sup>	Sweet, astringent			Kaphapittaghna Heart strengthening	Ignites digestive fire	Pain, skin disease, asthma, cyst, emaciation, anti-helminthic
Oil <sup>3</sup>	pungent	pungent	hot	Kaphavata pacifying Light, potent, 0.912-0.915 specific gravity	Anti-helminthic, laxative, fine lubricating, perfume holding	Skin disease, anti-diabetic, brain diseases
Root <sup>1</sup>	Pungent, horse-raddish taste				Anti-inflammatory, nerve-tonic	Ascites, liver, spleen diseases, otitis, fever, epilepsy, kidney stone



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<b>Flower</b> <sup>2,3</sup>	Bitter	cold, dry	Aphrodisiac, anti-inflammatory, tonic, diuretic-increase flow of bile, anti-lithic, digestive, asthma
<b>Gum</b> <sup>12</sup>	Bland mucilaginous	Tough, holds water, insoluble in water	

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Nutritional value of moringa is up to the mark it is a rich source of many vital nutrients, vitamins and minerals. It is rich source of Vitamin A, B, B1, B2, B3, C, E, Protein, carbohydrate, and iron, calcium, potassium, magnesium, phosphorus, zinc, selenium. Because of all this nutrients it is an immune-modulator, so it has great role in all immune-suppressant diseases. It is good anti-cancer herb; also it has capacity to prevent it. According to bhavprakash<sup>1</sup>, its leaves have good action on all kinds of growth, 'granthi and arbuda' so it will be definitely beneficial in cancer patients. And if saw modern research, it also proves that it has significant role as an anti-cancer drug in lung, liver and ovarian cancer. Also it is very good for hypertensive, diabetic and obese patients. It is good appetizer and digestive herb; also it has great action on liver and spleen so it will be useful to improve liver and spleen conditions, ascites, and metabolic diseases. It is a *kapha vata* balancing herb. It gives strength to

heart, eyes, liver, spleen and bronchioles. It has good anti- bacterial and anti -fungal activity. It has good action on skin diseases, worms, and kidney stone. Its flowers are aphrodisiac and used as tonic.

Lots of study carried out on *shigru*, by scientist which proven its medicinal value, as an antibacterial, and antifungal activity. Moringa has comparable action as a potential alternative treatment for various types of cancer. As stated earlier, naturally occurring, highly potent anti-cancer treatments that are low in toxicity are exceedingly welcomed. The water solubility of Moringa means that people could treat themselves in the comfort of their own homes and not experience the incredible side effects of conventional chemotherapy treatments. Table no 5 will show that Moringa has wide range of action of each and every part of this magical plant and it is useful to treat wide range of patients. Moringa can be consumed in a



capsule form as shown in figure in 3 to overcome its taste hesitance.



**Fig 3** Moringa leaves and capsules prepared from it

**Table 5** Different parts of Moringa tree, and system/ organs, treated by it, and its action

Part used	System/ organ	action
Root- external	Musculo-skeleton system	*Anti-inflammatory, analgesic, *otalgia
Root- internal	Digestive system Liver, spleen, Musculo-skeleton system Nervous system skin Reproductive system	*Fever, ascites, enlarged liver, spleen, flatulence *Nerve debility, epilepsy, hysteria, dropsy, tetanus *Chronic rheumatism, dental pain, articular pain *Pustules, patches, leprosy *Aborificient
Leaves	Digestive system Liver, spleen, Nervous system Immunity Reproductive organs heart Eyes skin	*Malnutrition, scurvy, anemia, infants-healthy bones, mal-absorption syndrome *Boost immunity, infections, tuberculosis, asthma, avoids seasonal attacks of cold, bronchitis, *Anti-bacterial, anti-fungal *premature loss of strength, vigor, functional sterility in male, female. *Hypertension, diabetes, dis-lipidemia, atherosclerosis *fulfills calcium, iron, vitamins requirement in pregnancy *liver, lung and ovarian cancer prevention, and treatment *Night blindness, memory enhancement *bleeding piles, epistaxis *corneal ulcer, nervous debility, burning, itching of eyes *scabies *Vertigo, memory *sprains, contusion
Pods	Digestive system Musculoskeleton Reproductive Nervous system	*intestinal worms, liver spleen enlargement, constipation *rheumatism, *small urinary stones *nerve tonic, bell's palsy, paralysis



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Flower	Digestive Reproductive Musculoskeleton	*Irregular mences, impotency *Digestive-increases bile flow, *anti- inflammatory *Aphrodisiac *cold, asthma *diuretic
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## CONCLUSION

Moringa is a magical plant with lots of vitamins, minerals, and micronutrients. It is a rich source of Vitamin A, B, B1, B2, B3, C, E, Protein, carbohydrate, and iron, calcium, potassium, magnesium, phosphorus, zinc, selenium. So it is of great importance in India, where lots of people are suffering from malnourishment. It has good role in digestive system, nervous system and genito-urinary system. It is good anti- inflammatory analgesic. It is boon for immune compromised patients. It is good to reduce sugar and cholesterol. Moringa has good cancer preventive and cure property, it is proved that it can cure lung, liver and ovarian cancer. In more quantity may cause digestive discomfort. It may have teratogenic effect on foetal embryo. It crosses placental barrier, and also may be harmful for infants. In spite of this moringa's medicinal and nutritional value is incredible. Further study is necessary to confirm its toxic effect.





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