A MINI REVIEW ON MEDICINAL PROPERTIES OF MORINGA OLEIFERA IN ALTERNATE SYSTEM OF MEDICINE

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ABSTRACT

Health is a state of complete physical, internal, social and spiritual well-being, not simply absence of complaint. Quality health is the right of every human being but it relies on individual, social and environmental factors. Health is a positive conception and doesn't just mean freedom from complaint. Unfortunately, the current system of Medicine worldwide, concentrates on treating symptoms and conditions, leaving the charge of health unaccomplished and giving compass for alternate means for restoration of health. India with its wealthy soil and good monsoonal climate serves as the habitat of numerous varieties of herbs with abundant medicinal properties. Indian civilization which has been developed amidst of the nature has clear idea about benefits of these medicinal herbs and the way how to use them effectively in day-to-day life. Nearly 28,187 plant species are considered to have medicinal properties. Medicinal properties of these plants/herbs are unimaginably abundant. This review deals with the uses of the Moringa oleifera in different system of medicines.

KEYWORDS: Ayurveda, Homoeopathy, Moringa Oleifera, Siddha, Traditional medicine.

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INTRODUCTION

Conferring to a 2012 national survey, many Americans more than 30 percent of adults and about 12 percent of children use health care approaches that are not typically part of orthodox medical care or that may have origins outside of usual Western practice. When describing these approaches, people often use “alternative” and “complementary” interchangeably, but the two terms refer to different concepts. [1] In this review the *Moringa oleifera* was used as a potential medicinal plant for different ailments in various systems of medicine. The drumstick tree or *Moringa oleifera* is a deciduous tree growing up to 15 m height commonly found in tropical regions of the world. Moringa is well known for its medicinal properties in traditional system of medicine, the parts used are leaves, flowers, bark, seeds.[2]

**Scientific Classification of *Moringa oleifera***

- **Kingdom**: Plantae
- **Clade**: Tracheophytes
- **Clade**: Angiosperms
- **Clade**: Eudicots
- **Clade**: Rosids
- **Order**: Brassicales
- **Family**: Moringaceae
- **Genus**: *Moringa*
- **Species**: *M. oleifera* [3]

*Moringa oleifera* from the perspective different systems of medicine

**Moringa in Ayurveda**

Ayurveda, Mother of all healing sciences lists almost 300 diseases that can be cured with Moringa [4]. Moringa can be considered as both detoxifier and tonic according to Vaidya Mishra. As it rapidly penetrates the body like an arrow and acts effectively it is called Shigru in the BhavaPrakash, Part 1[5]. In ayurveda, moringa is used to balance both Vata and kapha, it acts as a Liver cleanser.
Moringa in Ayurveda

The qualities of Moringa are categorised as Katu (Pungent), Tikta (bitter) in rasa, it's Guna include Laghu (light to digest), Rooksha (dryness), Teekshna (strong, piercing). Its Vipaka is katu and Veerya is Ushna.[6,7]

Ayurvedic books describe 3 varieties of Moringa

Black variety or Shyama

Its qualities include pungent, piercing, sharp, strong nature, hot in potency, slightly sweetish, light to digest, dry, has alkaline properties, Bitter, causes burning sensation, useful to check diarrhoea, improves semen quantity and sperm count, improves digestion, useful in cardiac problems, increases Pitta and vitiates blood, improves vision, its oral intake and external application as paste helps in quick wound healing of abscess, anti-inflammatory action, useful in worm infestation in stomach and in wounds, helpful to decrease fat and obesity, Useful in relieving carbuncles, Anti toxic action, useful in spleen related diseases, useful in abdominal bloating and tumors, useful in lymphadenitis, it vitiates blood so should not be taken in case of bleeding disorders and menstruation.

White variety or Shveta

It causes burning sensation, useful in splenic abscess, helps in quick wound healing, increases Pitta and vitiates blood.

Red variety or Raktha (Madhushigru)

It increases digestion power, promotes proper bowel movements.

According to Charaka Samhita, it is considered as Krimighna (to treat worm infestation), in treatment of piles, asthma, oedema, skin diseases; according to Sushruta Samhita it can be used to treat ascites, calculus, splenic disorder, skin diseases and conjunctivitis, epilepsy; according to Ashtanga
Hridya for Piles, Goitre, Cyst, Calculus, Earache, deafness and tinnitus; according to Kashyapa Samhita it can be used for puerperal disorders, sleeplessness, cough worm infestation and oedema; according to Harita Samhita it can be used for diseases of eye, worm infestation, snuffles of nose and headache; according to Sharangadhara Samhita it can be used for oedema, Abscess, Goitre, Conjunctivitis; according to Yogaratnakara it can be used to treat enlargement of spleen, worm infestation, ascites, oedema, fever, abscess, fistula in ano, measles and pox and according to Vagbhata it is considered to be among Varunadi group.\cite{8,10}

MORINGA IN SIDDHA

In South India, the ancient Dravidian system of medicine known as Siddha system is widely practiced. In this system, medicines are given in compound form containing herbs, metals, minerals and/or animal products.\cite{9} Almost all parts of the Moringa plant are used in Siddha system of medicine due to its valuable medicinal properties. As in Ayurveda, it is used to treat ailments of Vatham and Kapha, hence it can be cooked and taken as a food as such.

Therapeutic use of Moringa according to traditional Siddha healers

For Ankle Pain

Paste prepared from few grounded seeds of moringa oleifera and Brassica juncea to be applied on the ankle two times everyday till it gets cured.

For Fever

Few leaves of Azadirachta indica, bark of Moringa oleifera, leaves of Tephrosia purpurea and Pergularia daemia along with a small piece of Zingiber officinale (dried rhizome) is boiled and ½ cup of the juice is to be taken orally 2 times per day for two days.

For Impotency in males

Few seeds of Ficus benghalensis, Ficus religiosa, Ficus racemosa, Mucuna pruriens, Strychnos potatorum, Moringa oleifera, Nelumbium speciosum, Caesalpinia spinosa, Senna auriculata, Hybanthusenneaspermus, Cicerarietinum, Sesamum indicum, Vignamungo, Triticumaestivum, grains of Bambusa bambos, Oryza sativa grains (Daya and Koliyal), tuber of Withania somnifera, leaves of
Cyclea peltat, Holostemma kodien and tuber of Curculigo orchioides, Borassus flabellifer is boiled in water and a cup of this decoction is mixed with a spoon of honey and can be taken orally twice a day for 90 days.

**For general health improvement for pregnant women**

*Moringa Oleifera*, not only helps pregnant women as a supplement but also prevents adverse pregnancy outcome.[10]

**Health benefits of Moringa leaves**

In management of Cardiac diseases, in managing Sugar level, improves immunity, for inflammations and swellings, reduces chances of cancer, improves Eye vision and also prevent Ageing Macular Degeneration, in treating Menstrual cramps, to improve bone density, improves hair growth, skin health and plays a vital role in Spermatogenesis. Leaf juice with lemon juice can be mixed and applied over face to overcome blackheads and acne, cooked leaves when given to pregnant ladies especially in last trimester helps in easy delivery, reduces post delivery complication and increases milk secretion in lactating women.

**Health Benefits of Moringa Seed Pods**

In treatment diseases of liver, spleen and paralysis, improves digestion, acts as an aphrodisiac (hence used in treating male impotency), aids in maintaining good bones, heart, skin, hairs and healthy internal organs.

**Health Benefits of Moringa Flowers**

Soup of flower is acts as aphrodisiac.

**Health Benefits of Moringa Root**

It was used as gargle for painful gums and throat problems, its paste is used to treat glandular swellings[9]; decoction of its root is used to treat arthritis (in the form of Sindhuvalladhimelugu, Soubhagyasundiillagam).[12]

**Health Benefits of Moringa Bark**
It was used in treatment of Epilepsy. [11]

MORINGA IN HOMOEOPATHY

To treat forgetfulness, Irritability, Weakness, Vertigo, Headache, Hair Fall, Skin complaints- Pimples, Pigmentation of Skin; Respiratory Problems-Cold, Breathing Difficulty; Poor appetite and other gastric ailments, Urinary troubles and fever. Modalities: Better in open air, evening Worse morning, exposure to cold air [13]

The Homoeopathic Mother Tincture of Moringa oleifera is mainly prescribed for regulating blood sugar and cholesterol levels, boosting immunity, strengthening bones, improving milk production in lactating mothers, protecting the Liver from any damage and in men as an aphrodisiac.[26]

Traditional Uses

Water purification, Hand washing, Food perseverance; medically for Tired blood (Anaemia), Arthritis, joint pain, (Rheumatism), Asthma, Carcinoma, Constipation, Diabetics, diarrhoea, epilepsy, stomach pain, intestinal ulcers, intestinal spasm, headache, heart problems, high blood pressure, kidney stones, fluid retention, thyroid disorders, bacterial, fungal, viral & parasitic infection. For neuro-dysfunctional diseases, to reduce swelling as on aphrodisiac, prevent pregnancy, boost immune system, breast milk production as an astringent, for gingivitis, snake bite, warts, wounds athletes’ foot. Its oil is used in perfumes, hair care products. [14,15]

Moringa oleifera in from pharmacological point of view

Numerous studies on nutrition, phytotherapy and deterrence goals have been published, thus subsidiary scientific basis about the efficiency of traditional uses of Moringa oleifera. In fact, records about symptoms, signs and treatment strategies in different diseases are found in several ancient texts of traditional medicines such as Ayurveda, Siddha and Homoeopathy. The essential phytochemical components present in the Moringa oleifera were tabulated in Table 1. Moringa oleifera also acts and impacts at psychological, bouncing and spiritual level altogether, having a strong effect in the character. Moringa oleifera leaves are cold, which has anti-inflammatory effect, lowering the fever, can also reduce the body’s metabolism, therefore allowing to speculated that Moringa oleifera leaves
have a cooling effect in the body. *Moringa oleifera* leaves also have a lipid-lowering, weight-loss, and arterial plaque improvement.

**Table 1: Pharmacological actions of various phytochemicals in Moringa**

<table>
<thead>
<tr>
<th>Part of the plant</th>
<th>Phytochemicals</th>
<th>Pharmacological action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaves [16,17,18,23]</td>
<td>Benzoic acid, Gallic acid, Beta benzaldehyde, Niazirin, Niazininins A and B[^16^], n-hexadecanoic acid, tetradecanoic acid, cis-vaccenic acid, octadecanoic acid, palmitoyl chloride, beta-l-rhamnofuranoside, 5-O-acetyl-thio-octyl gamma-sitosterol, pregn-7-diene-3-ol-20-one[^23^], aspartic acid, glutamic acid, essential amino acids[^25^]</td>
<td>Hypcholesterolemic, anti-diabetic, hypertensive agent and regulate thyroid hormone, central nervous system (Brain-restores mono-amine levels)[^21^], digestive system, nutrition and metabolism, eye, ear, nose, throat, genito-urinary system diseases and to treat gastric ulcers and scurvy, hepato protective and renal protective, Anti-oxidant activity[^17^], Immuno-modulatory action[^17^], Analgesic effect, Anti-fungal activity, anti-helmenthic activity</td>
</tr>
<tr>
<td>(1 → 4)-α-D glucan (polysaccharide) niaziminin[^18^]</td>
<td>Immune enhancement activity[^18^], Prevents tumor induced by Epstein Barr Virus[^16^]</td>
<td>Anti-cancer activity[^17^,^22^]</td>
</tr>
<tr>
<td>4-(α-L-rhamnosyloxy) benzyl isothiocyanate, Niazimicin, β-sitosterol-3-O-β-D-glucopyranoside, Kaempferol, Benzyl isothiocyanate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavonoids and phenolic acid</td>
<td>Anti-inflammatory action[^17^], anti-oxidants action.</td>
<td></td>
</tr>
<tr>
<td><strong>Isothiocyanates</strong>, Phenolic compounds, flavonoids and tannins[^17^]</td>
<td></td>
<td>Hypoglycemic effect.[^17,21,24^]</td>
</tr>
<tr>
<td>Component</td>
<td>Bioactive Properties</td>
<td></td>
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<td>-----------</td>
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<tr>
<td>Chlorogenic acid[^21]</td>
<td>Anti-dyslipidimic effect.[^17]</td>
<td></td>
</tr>
<tr>
<td>Cryptochlorogenic acid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercetin 3-β-D-glucoside</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kaempferol 3-O-glucoside[^24]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavonoids and phenolic acid</td>
<td>Anti-microbial activity.</td>
<td></td>
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<tr>
<td>Tannins</td>
<td></td>
<td></td>
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<tr>
<td>Antraquinones</td>
<td>Laxative property[^19]</td>
<td></td>
</tr>
<tr>
<td>Terpenoids and Steroids</td>
<td>Anti-bacterial activity[^19]</td>
<td></td>
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<tr>
<td>Nitrogen containing alkaloids</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thio carbamate isothiocyanate glycosides[^21]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alkaloids, flavonoids and tannins</td>
<td>Antiepileptic activity[^21]</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Preparation</th>
<th>Bioactive Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf and Seed[^17]</td>
<td>Biopesticide activity, Hepatoprotective, anti-carcinogenic action[^21]</td>
</tr>
<tr>
<td>Leaves and Roots[^21]</td>
<td>Anti-oxidant and Radical scavenging activity</td>
</tr>
<tr>
<td>Seed Kernel[^21]</td>
<td>Anti-asthmatic activity</td>
</tr>
</tbody>
</table>

[^21]: Reference 21
[^17]: Reference 17
[^20]: Reference 20
[^22]: Reference 22
<table>
<thead>
<tr>
<th>Part</th>
<th>Constituents</th>
<th>Activity/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowers</td>
<td>Pterygospermin, Tannins, phlobatannin, steroid, glycoside, saponin and flavonoid</td>
<td>Anti-fungal activity</td>
</tr>
<tr>
<td></td>
<td>D-glucose, Isoquercetin, Kaempferitin, Ascorbic acid, Protein, D-mannose</td>
<td>Anti-Microbial action</td>
</tr>
<tr>
<td></td>
<td>Kaemopherol, Quercetin</td>
<td>Anti-carcinogenic action</td>
</tr>
<tr>
<td>Bark</td>
<td>4- (alpha-L- rhamnopyranosyloxy) benzylgiucosinolate</td>
<td>Anti-uroolithiatic activity</td>
</tr>
<tr>
<td>Root</td>
<td>Moringine, Moringinine, Spirachin, 1,3-dibenzyl urea, alpha- phellandrene p-cymene, Deoxy-niazimicine, 4-(alpha-L-rhamnopyranosyloxy) benzylgiucosinolate</td>
<td>Anti-fertility activity</td>
</tr>
<tr>
<td>Stem</td>
<td>4-hydroxyl 28840ullein, Vanillin, Octacosonoic acid, beta-sitosterone beta-sitosterol</td>
<td>Anti-ulcer activity</td>
</tr>
<tr>
<td>Root bark</td>
<td>Moringine, Morphine</td>
<td>Anti-ulcer activity</td>
</tr>
<tr>
<td>Root, Bark, leaves, flowers, seeds, stalks</td>
<td>Glucomorigin / 4-(α-L-rhamnopyranosiloxy) benzyl glucosinolate</td>
<td>Anti-bacterial activity against bacteria, yeast, dermatophytes and helminths</td>
</tr>
<tr>
<td>Leaves, roots, bark, seeds</td>
<td></td>
<td>Hypoglycemic activity</td>
</tr>
</tbody>
</table>

**CONCLUSION**
Moringa contains proteins, vitamins, and minerals. As an antioxidant, it seems to help protect cells from damage. Moringa may also help decrease inflammation and reduce pain. Taking moringa along with some medications that are broken down by the liver can increase the effects and side effects of some medications. Moringa has many important vitamins and minerals. The leaves have 7 times more vitamin C than oranges and 15 times more potassium than bananas. It also has calcium, protein, iron, and amino acids, which help your body heal and build muscle.

REFERENCES