

MORINGA OLEIFERA: NURIENT VALUE AND HEALTH BENEFITS

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ABSTRACT

Moringa oleifera, commonly known as the drumstick tree, has been revered for centuries in traditional medicine and cuisine. The powder derived from its leaves is a rich source of essential amino acids, vitamins, minerals, and antioxidants. This botanical has been shown to possess anti-inflammatory, antimicrobial, and anti-cancer properties, making it a potential adjunct for various health conditions. The powder has been traditionally used to support cardiovascular health, digestive wellness, and immune function. Modern research has also explored its potential in managing blood sugar levels, reducing inflammation, and promoting cognitive function. With its high nutritional value and potential health benefits, Moringa oleifera powder is a valuable addition to a healthy diet and supplement routine

Keywords: Immunity, Booster, Anticancer, Antimicrobial, Moringa, Nutrient.

I. INTRODUCTION

Moringa (*Moringa oleifera* Lam.) is native to the Indian subcontinent and has become naturalised across the world's tropical and subtropical regions. Regional names for the tree include Shevga, Benzolive, Drumstick tree, Horseradish tree, Kelor, Marango, Mlonge, Mulangay, Saijihian, and Sajna (Fahey, 2005). The plant grows best in a tropical insular climate. It grows well in the humid tropics or hot dry areas, can live in less rich soils, and is drought tolerant (Anwar et al., 2007). It is regarded as one of the most beneficial trees in the world since practically every component of the Moringa tree may be utilised for food, medicine, and industrial applications (Khalafalla et al., 2010). People make use of its leaves, blossoms, and fresh fruit. (1)

Moringa oleifera was already recommended in ancient Ayurvedic writings. Moringa oleifera was used externally as poultices and ointments on wounds to cure infections and abscesses in ancient Indian medicine.



Moringa oleifera was previously recommended in ancient Ayurveda writings. Moringa oleifera was used topically as poultices and ointments on wounds to cure infections and abscesses in ancient Indian medicine. Consuming the protein-rich leaves promotes adequate intake of various amino acids, including essential amino acids. Moringa oleifera has yielded at least 110 distinct chemicals. Vitamins A, B1, B2, B3, C, and E are among them, as are minerals such as calcium and iron, as well as many flavonoids, glucosinolates, terpenes, alkaloids, saponins, sterols, fatty acids, and phenolic compounds (Abd Rani et al., 2018).

Since the 1940s this so-called 'miracle tree' has drawn attention from scientific researchers (Spruijt et al., 1940; Jamieson et al., 1939; Rao et al., 1946)

It is a multi-purpose plant cultivated for medicinal applications and used as food and feed. Seeds of Moringa were extracted for oil and curry powder (Golh 1998) and have been used for cleaning water. In some places in Vietnam, Moringa leaves are used for food (Pham Hoang Ho 1970). Agronomic trials with Moringa (Manh et al 2003) show that the plant can grow well in hilly areas, in weathered soils of low fertility in Tinh Bien district, An Giang province. However, information about growth of Moringa in the acid soil regions of the Mekong Delta is almost absent.

Moringa foliage is known as a rich protein source, low anti-nutritional factors (Makka and Becker 1996). For goat production, the use of grass as the only component of diet is not appropriate because grasses are low in protein. Moringa foliage is therefore a potential inexpensive protein source (Sarwatt 2004). The leaves of *Leucaena* (*Leucaena leucocephala*) are known to be highly nutritious, and are readily consumed by animals (Shelton et al 1994; Nguyen Thi Hong Nhan 1998; Yami et al 2000).

The aim of the present study was firstly to measure some agronomic characteristics of Moringa for biomass production and secondly to evaluate its use as a basal diet for goat production. A comparison between methods of feeding Moringa and *Leucaena* (by hanging the branches or putting them in the feed trough) was included in the study in view of the findings by Theng Kouch et al (2003) that hanging the branches of forage shrubs supported higher feed intakes and digestibility as compared with putting it in the feed trough.(17)

Nearly every part of the moringa tree is edible. It is rich in antioxidants and other nutrients which are commonly missing in the diets of people living in undeveloped countries.

II. REVIEW OF LITERATURE

Kavita Walia , Anshdeep Kapoor , Jeffrey M Farber

This qualitative risk assessment (QRA) was conducted to estimate the microbiological risk associated with the consumption of *Moringa oleifera* leaf powder (MLP) by infants and children ages 6 to 23 months to prevent or treat undernutrition in Siem Reap, Cambodia, and Madhya Pradesh, India. This QRA follows the Codex Alimentarius Commission principles and guidelines for risk assessment and takes into account all known microbial hazards that are associated with MLP. A comprehensive literature search was carried out for foodborne pathogens isolated from MLP and other dried foods of similar consistency, such as dried herbs and spices and flour. From this literature search, the following pathogens were identified and considered for this microbiological QRA: *Bacillus cereus*, *Escherichia coli*, *Campylobacter* spp., *Clostridium perfringens*, *Cronobacter* spp., *Listeria monocytogenes*, *Salmonella* spp., and *Staphylococcus aureus*. Results suggest that when cereal slurry (porridge) fortified with MLP is boiled (a rolling boil for 5 min) prior to consumption, the food safety risk to undernourished infants and children of *B. cereus*, *C. perfringens* type A, *Cronobacter*, enterohemorrhagic *E. coli*, *L. monocytogenes*, *Salmonella* spp., and *S. aureus* is low to moderate, with only a moderate to serious risk posed by *C. perfringens* type C.

Laurene Boateng , Irene Ashley , Agatha Ohemeng

Vitamin A deficiency (VAD) remains a major public health issue and is reported to be the cause of about 6 percent of child deaths under the age of 5 years in Africa. Inadequate dietary intake of vitamin A-rich foods is a major cause of VAD. *Moringa oleifera* leaf powder (MLP) is rich in nutrients particularly vitamin A and its use in infant feeding has been explored. This pilot study was designed to test the efficacy of MLP in improving blood retinol concentrations among infants in a rural district in Ghana. A subset of infants participating in a randomized controlled trial (ISRCTN14377902) were randomly assigned to receive one of the three study foods (*MCL-35g* and *MS-5g* both of which were fortified with MLP, and a third food, *CF-35g*, a cereal legume blend which served as the control food) in a feeding intervention that lasted for 6 weeks. Primary outcome of the pilot study was retinol levels measured in 5 ml of whole blood at baseline and endline using the iCheck™ Fluoro device. A total of 103 infant-mother pairs were recruited at baseline, of which 65 completed the study.

Hlengiwe Sokhela , Laurencia Govender , Muthulisi Siwela

Poor complementary feeding is a common practice in developing regions, including South Africa (SA), and is one of the main contributing factors to childhood malnutrition. This paper reviews the literature on complementary feeding practices in SA and the potential of fortifying home-prepared complementary foods with *Moringa oleifera* to improve their nutritional composition. Studies that investigated complementary feeding practices, indigenous crops, nutritional benefits of *Moringa oleifera*, and the use of MOLP as a fortificant both locally and globally were included in this review. In SA, maize meal and commercial cereal are the most commonly used complementary infant foods. The diet consumed by children from vulnerable households commonly has insufficient nutrients. Foods consumed are generally high in starch and low in other essential nutrients, including good-quality protein. Impoverished individuals consume poor-quality foods as they are unable to afford a diversified diet with food from different food groups, such as protein, fruits, and vegetables. In SA,

various programs have been implemented to reduce the incidence of childhood malnutrition. However, childhood malnutrition remains on the rise. This shows a need for complementary food-based strategies that can be implemented and sustained at a household level. This can be conducted through the use of accessible indigenous crops such as *Moringa oleifera*. *Moringa oleifera* contains essential nutrients such as proteins, amino acids, vitamins, and minerals. Therefore, it could possibly be used as a home-prepared complementary food fortificant to enhance nutritional composition. Before complementary foods can be fortified with *Moringa oleifera*, popular home-prepared complementary foods must be identified.

III. NEED OF STUDY

- 1. Standardization and Quality Control:** Developing standardized extraction and processing methods to ensure consistent quality and bioavailability of Moringa powder.
- 2. Bioavailability and Absorption:** Investigating the bioavailability and absorption rates of Moringa powder's nutrients and bioactive compounds in humans.
- 3. Clinical Trials:** Conducting rigorous clinical trials to confirm the efficacy and safety of Moringa powder for various health conditions, such as diabetes, hypertension, and inflammation.
- 4. Mechanisms of Action:** Elucidating the molecular mechanisms by which Moringa powder exerts its anti-inflammatory, antioxidant, and anti-cancer properties.
- 5. Interactions and Contraindications:** Investigating potential interactions between Moringa powder and medications, as well as contraindications for its use in certain populations (e.g., pregnant women, children).
- 6. Optimization of Dosage and Preparation:** Determining the optimal dosage and preparation methods (e.g., capsules, tablets, tea) for various health benefits.
- 7. Comparison with Other Nutraceuticals:** Comparing the efficacy and safety of Moringa powder with other nutraceuticals and supplements.
- 8. Long-term Safety and Efficacy:** Conducting longitudinal studies to assess the long-term safety and efficacy of Moringa powder supplementation.
- 9. Potential Applications in Various Diseases:** Investigating the potential therapeutic applications of Moringa powder in diseases such as cancer, neurodegenerative disorders, and infectious diseases.
- 10. Agricultural and Environmental Impact:** Studying the environmental impact of large-scale Moringa cultivation and developing sustainable agricultural practices.
- 11. Disease-specific clinical trials:** Conducting clinical trials to determine the efficacy of *Moringa oleifera* in preventing or treating specific diseases, such as cancer, diabetes, and cardiovascular disease.
- 12. Bioavailability and pharmacokinetics:** Investigating the bioavailability, absorption, distribution, metabolism, and excretion of *Moringa oleifera*'s bioactive compounds to understand how they interact with the human body.
- 13. Mechanisms of action:** Elucidating the molecular mechanisms by which *Moringa oleifera* exerts its anti-inflammatory, antioxidant, and anti-cancer properties.

Aim and objectives of Moringa powder:

Nutritional Objectives:

Provide essential vitamins, minerals, and antioxidants
Support overall health and well-being
Enhance energy levels and mental clarity
Support immune system function

Therapeutic Objectives:

Reduce inflammation and oxidative stress
Improve cardiovascular health
Support blood sugar regulation
Enhance cognitive function and memory
Support cancer prevention and treatment

Anti-Aging Objectives:

Reduce fine lines and wrinkles
Improve skin elasticity and firmness
Enhance skin hydration and radiance
Support hair and nail health

Digestive Objectives:

Support healthy gut bacteria
Improve digestion and nutrient absorption
Reduce symptoms of IBS and other digestive disorders

Inflammatory Objectives:

Reduce joint pain and inflammation
Improve symptoms of arthritis and other inflammatory diseases
Support healthy immune response

Antimicrobial Objectives:

Inhibit growth of harmful bacteria, viruses, and fungi
Support wound healing and tissue repair

Cardiovascular Objectives:

Lower cholesterol levels and blood pressure
Improve blood lipid profiles
Support healthy cardiovascular function

Neuroprotective Objectives:

Support healthy brain function and development
Reduce risk of neurodegenerative diseases
Improve cognitive function and memory

Overall Well-being Objectives:

Enhance overall health and well-being
Support healthy aging
Improve quality of life

HISTORY:

Historically, moringa was originally named "Nebedaye," meaning "the one that never dies," as identified and used in several African languages. The plant was discovered around 2000 BC in the northern region of India.

Moringa has a long health history in various human civilizations. It had gained a lot of interest in ancient Egyptian civilization; it was considered a Holy plant to ancient Egyptians as the Holy Lotus flower. The oil from the Moringa was from the Holy Oils, which gave ancient Egyptian exaltation, energy regeneration, and vitality. It was also included in treatments for dental pain, headache, stomach therapy, skin hydration, and wrinkles; as well as being a natural filter for drinking water to purify it from bacteria.

As mentioned previously, moringa has deep cleansing and detoxifying effects. In Bhava Prakash, a historical Ayurvedic text, moringa is called "sigru," which translates to "moves like an arrow." This is in reference to moringa's ability to quickly penetrate the dhatus (tissue layers of the body) for deep cleansing. It has a particular affinity for rakta dhatu (blood) and meda dhatu (fat).

Its bitter, pungent nature makes moringa excellent for balancing kapha and vata dosha, though it may increase vata in excess due to its bitter taste. Its heating qualities may aggravate pitta.

It is native to the sub-Himalayan region in the north of India, Pakistan, Africa, Asia Minor, and Arabia and has been introduced in other parts of the world. Moringa is the only genus present in the monotypic family Moringaceae, which includes 13 species

➤ **PARTS OF MORINGA OLEIFERA**

1. Leaves-

Drumstick tree leaves are packed with nutritional properties and are 100% edible. They are a rich source of nutrients like protein, carbohydrate, fiber, Beta carotene, vitamin C and minerals like calcium, potassium, iron and phosphorous [6]. The protein content of various pulses, viz., is equal to that of the dried Moringa oleifera leaf powder. moth beans, soybeans, kidney beans etc., which contain (22-24%). protein, thus used in food. Leaves contain essential amino acids such as methionine, cysteine, tryptophan and lysine, are thus ideal for regular diet [7]. The leaves contain various types of antioxidant compounds such as ascorbic acid, flavonoids, phenolic compounds and carotenoids and act as a natural antioxidant.(3)

Moringa leaves are an excellent source of many vitamins and minerals. One cup of fresh, chopped leaves (21 grams) contain leaves (21 grams) contains -

Protein: 2 grams

Vitamin B6: 19% of the RDA

Vitamin C: 12% of the RDA

Iron: 11% of the RDA

Riboflavin (B2): 11% of the RDA

Vitamin A (from beta-carotene): 9% of the RDA

Magnesium: 8% of the RDA

In Western countries, the dried leaves are sold as dietary supplements, either in powder or capsule form. Compared to the leaves, the pods are generally lower in vitamins and minerals. However, they are exceptionally rich in vitamin C. One cup of fresh, sliced pods (100 grams) contains 157% of your daily requirement. The diet of people in developing nations sometimes lacks vitamins, minerals and protein. In these countries, Moringa oleifera can be an important source of many essential nutrients. However, there is one downside: Moringa leaves may also contain high levels of antinutrients, which can reduce the absorption of minerals and protein (4)

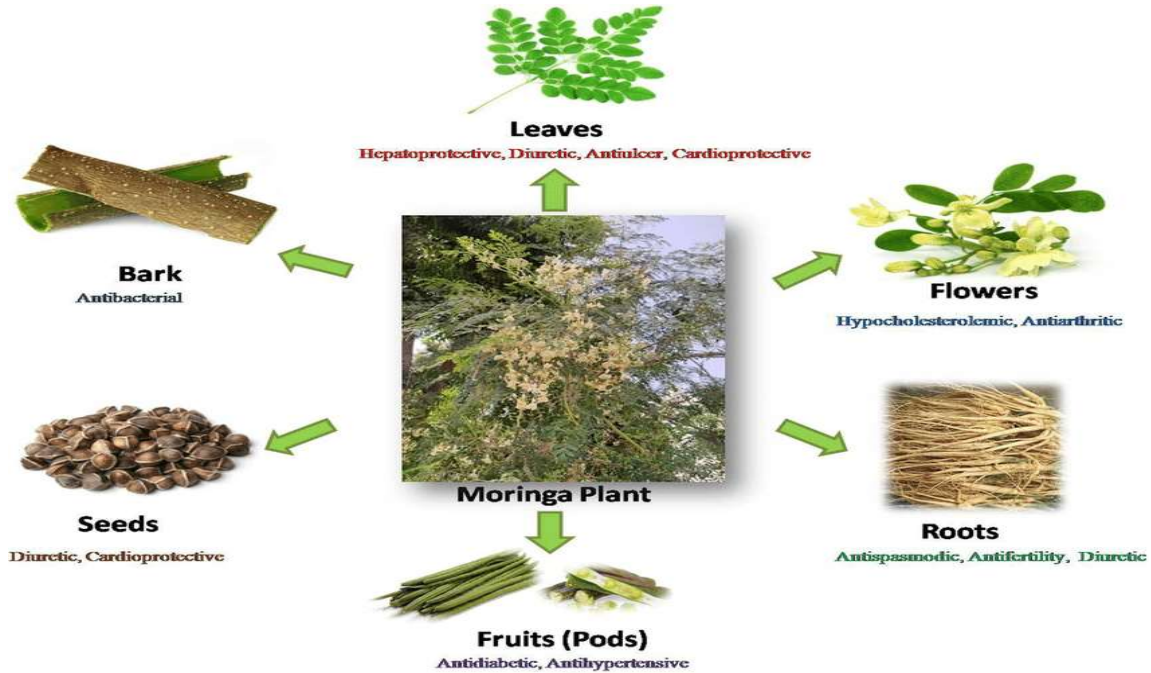
SEEDS:

Vitamins A and B1 are also present in *M. oleifera* seeds, in addition to the intriguing presence of proteins, lipids, and carbs (Mbah, Eme, & Ogbusu, 2012). Additionally, they include minerals, micronutrients, and bioactive substances such as phytates, flavonoids, saponins, sterols, and trypsin inhibitors. The seed's lipid content, which ranges from 13% to 46%, qualifies it as an oilseed. This suggests that *M. oleifera* seeds can serve as a source of fibre and lipids in addition to protein.

Protein is found in moringa oleifera seeds, and after lipids, it is the second most important element in these seeds. Between 18.6% (Kawo et al., 2009) to 37.2% (Bridgemohan, Bridgemohan, & Mohamed, 2014), according to recent research, protein content varied.

Between 9.17% and 53.36% of the moringa oleifera seed's weight is carbohydrates (Compaoré, Nikiéma) (5)

FLOWERS: The crude protein content of the dried Moringa oleifera flower was 25.16%, the carbohydrate content was 53.67%, and the Ash content was 6.01%. The proximal values found in this study for the flower are equivalent to those found by Moyo et al. (2013) for the leaves. The outcomes obtained demonstrate the presence of nutritive components in Moringa oleifera flower. It is noteworthy that the crude protein content is comparable to that of other legumes including cowpea, bambara groundnut, and pigeon pea, despite being lower than that of sunflower and soy beans (Mapiye et al., 2010; Hillocks et al., 2012; Adegbola and Bamishaiye, 2011). This level of crude protein concentration is particularly significant nutritionally since it may meet newborn protein requirements and strengthen the immune system against illnesses.



Plan of work

- a. Searching of various literature regarding
- b. Segregate the required literature.
- c. Selecting appropriate research articles
- d. Survey for need of market.
- e. Formulation of moringa powder using various Herbal Ingredients with the help of sophisticated equipment and instruments as per required procedure.
- f. Evaluation parameter for moringa powder
 - a. Organoleptic properties-
 - Colour
 - Odour
 - Consistency
 - Homogeneity and texture
 - b. Washability
 - c. pH
 - d. Viscosity
 - e. Extrudability
 - f. Spreadability
 - g. Skin irritation
7. Comparison with the market.
8. Compilation and submission of data.

IV. METHODOLOGY

1. Take fresh moringa leaves from the tree or purchased from the market. Wash them properly with the stems on it. Let all the water drain from them.
2. Remove the leaves from the stem. Discard all the yellow or brown leaves. Then gently wipe all the leaves with a soft muslin or cotton cloth.
3. Spread it nicely on a clean cloth or paper and allow it to dry inside the house for 1-2 days till they are dry and crispy.



4. In a grinder jar take the dried moringa leaves and grind into a fine powder.
5. Sieve the powder and store in a clean dry glass bottle at room temperature.

V. OBSERVATION AND DISCUSSION

HEALTH BENEFITS OF MORINGA OLEIFER



1) Cancer Prevention And Treatment

Cancer-preventive qualities are present in moringa. For instance, it contains niazimicin, a substance that inhibits the growth of cancer cells.

Some experts claim that extracts from the moringa plant's leaves, bark, and other parts may have the ability to kill cancer cells. They may be effective in treating breast, liver, colorectal, and other cancers if future study supports this. (7)

2) Treatment Of Stomach Discomfort

Moringa extracts may be useful in treating certain stomach ailments. For example, fibrous pods can improve digestive health and may help prevent colon cancer. Moringa leaves have a laxative action, making moringa a potential treatment for constipation. Moringa lowered stomach acidity by roughly 85% in one research, implying that it could help prevent peptic ulcers. Moringa's antibiotic and antibacterial characteristics may aid in the prevention of pathogen growth that can cause illnesses. Moringa's anti-inflammatory properties may protect the digestive system from injury, which may help avoid ulcerative colitis. (8)

3) Protecting The Liver

Moringa may offer liver protection against nonalcoholic fatty liver disease.

Researchers gave guinea pigs a meal that included moringa oleifera leaves in one trial to investigate the plant's potential for treating liver or other bodily issues. People who ingested more moringa had reduced cholesterol and triglyceride levels as well as decreased liver inflammation. (9)

4) Skin And Hair Protection And Nourishment

Moringa seed oil has been shown in animal studies to help heal skin lesions faster.

One way it might accomplish this is by lowering oxidative stress.

According to some experts Trusted Source, moringa seed oil may also be beneficial to hair health. More research, particularly involving humans, is required.

5) Combating Bacterial Illnesses Caused By Food

According to research Trusted Source, moringa includes compounds that may act against some foodborne pathogens such as Staphylococcus aureus (S. aureus) and Escherichia coli (E. coli). (11)

S. aureus can be found in sliced meats, sandwiches, and other items that have not been cooked between handling and eating, (12) whereas E.coli can pass Trusted Source through contaminated water or food. Both forms of bacteria can cause diarrhoea and Other Food Poisoning Symptoms. (13)

6) Edema Treatment

Edema occurs when fluid accumulates in body tissues, for example, as a result of inflammation. Ear edema is caused by tissue swelling around the ear, which is usually caused by an infection.

In one study, administering moringa seed oil to animals with ear edema reduced skin inflammation. This shows that moringa's anti-inflammatory effects may help treat ear edema, while additional research is needed. (14)

7) Rheumatoid Arthritis Prevention

According to the authors of a rat study, moringa extract possesses anti-inflammatory effects that may help prevent rheumatoid arthritis. (15)

8) Mood And Nervous System Disorders Are Treated.

Moringa's antioxidant action may protect against nervous system ailments such as multiple sclerosis (MS), Alzheimer's disease, neuropathic pain, and depression. Scientists believe it has neuroprotective characteristics, although they are unsure how they function.(16)

9) Asthmatic Treatment

Moringa includes compounds that may aid in the treatment and prevention of asthma, bronchial constriction, and airway inflammation. One study discovered that giving guinea pigs a moringa extract enhanced their lung function. (17)

10) Lowering Blood Pressure

Moringa includes compounds that may aid with blood pressure management.

A group of healthy volunteers in one study consumed 120 grammes of cooked moringa leaves for a week, while another group did not.

Those who took moringa had lower blood pressure two hours after eating than those who did not.

11) Kidney Stone Prevention

To prevent kidney stones, several traditional medicines propose consuming moringa.

Moringa can treat a variety of diseases. Laboratory investigations have revealed indications that moringa extracts may prevent minerals from accumulating and creating kidney stones.

More research, however, is required to substantiate its application.

12) Enhancing Eye Health

Moringa includes the antioxidant beta carotene, which is necessary for preserving eye health and avoiding eye illnesses.

13) Anemia And Sickle Cell Disease Treatment

Moringa has long been used to treat and prevent anemia in several regions of the world.

Laboratory experiments have shown that consuming moringa as a meal or pill may help control sickle cell illness.

14. Diabetes

The majority of research on the impact of moringa on diabetes management has been conducted using animal models. This indicates that the researchers researched moringa in animals other than humans, such as rats. Animal studies alone are insufficient to draw any conclusions on the usage of moringa.

However, in one tiny human investigation, researchers investigated the effects of moringa leaf powder on blood sugar response in diabetics. The study comprised 17 people with diabetes and 10 healthy people.

Overall, moringa leaf powder lowered post-meal blood sugar rises in diabetic patients by up to 40 milligrammes per deciliter. Moringa had no effect on blood sugar levels in people who did not have diabetes. (22)

More study on the benefits of moringa on diabetes management is required.

Other Health Benefits Of Moringa:

Many health benefits of moringa powder are due to its rich proteins, minerals, amino acids, antioxidants, and flavonoids. Moringa powder can be used to protect tissue (liver, kidneys, heart, and lungs), and to reduce pain.

- Tired blood" (anemia).
- Arthritis.
- As a nutritional supplement.
- Birth control.
- Cancer.
- Constipation.
- Diarrhea.
- Epilepsy.
- Headache.
- Heart problems.
- High blood pressure.
- Increasing sex drive.
- Infections.
- Kidney stones.
- Stomach and intestinal ulcers.
- Stomach pain (gastritis).
- Swelling (inflammation).
- Stimulating immunity.
- Thyroid disorders
- APPLIED TO THE SKIN:
- Athlete's foot.
- Dandruff.
- Gum disease (gingivitis)
- Warts.
- Skin infections.

- Snakebites.
- Other conditions.

Note: More evidence is needed to rate moringa for these uses.

Natural Medicines Comprehensive Database rates effectiveness based on scientific evidence according to the following scale: Effective, Likely Effective, Possibly Effective, Possibly Ineffective, Likely Ineffective, and Insufficient Evidence to Rate.

➤ WHAT ARE THE MORINGA SIDE EFFECTS?

Moringa is **LIKELY SAFE** when the leaves, fruit, and seeds are eaten as food. Moringa leaf and seeds are **POSSIBLY SAFE** when taken by mouth as medicine, short term. Products containing moringa leaf have been used with apparent safety for up to 90 days. Products containing moringa seed have been used with apparent safety for up to 3 weeks. Moringa root and root extracts are **POSSIBLY UNSAFE** when taken by mouth. The roots contain spirochin, a toxic substance.

Although few human trials have been conducted, those that have shown moringa to be well tolerated with no documented negative effects.

Some experts believe that consuming a lot of moringa might produce an increase in iron in the blood, which can lead to gastrointestinal troubles and hemochromatosis. It is not advised to

consume more than 70 gm each day.(23) The term studies refers to Before using any dietary or herbal supplements, consult with your healthcare professional and chemist.

When used orally, the leaves, fruit, and seeds of moringa are probably harmless. When administered as medicine for a brief period of time, moringa seeds and leaves may be harmless. Products made with moringa leaf have a maximum six-month shelf life. Products made using moringa seed have a three-week shelf life. The root and bark of the moringa tree may be dangerous. Toxic chemicals are present in the root bark and roots.

When skin-contact is made: There isn't enough trustworthy data to determine whether moringa is safe or what potential adverse effects there may be. (24) During pregnancy, Breast-feeding and to children moringa oleifera may be cause side effects. more research study on it required.

➤ PRECAUTIONS

Because not enough study has been done in these groups, pregnant women and children should avoid taking moringa oleifera in any form. Before beginning any supplement, consult with your healthcare physician.

Moringa oleifera has traditionally been used in Asia as a galactagogue (something that enhances milk flow). Several studies, however, have found that it is unlikely to help increase milk production.(25)

If you want to use moringa oleifera while breastfeeding, you should check with your healthcare professional or a lactation expert beforehand.

➤ INTERACTIONS

More study on the interactions between moringa oleifera, medicines, and herbal supplements is required. Some evidence suggests that the following drugs may interact with moringa oleifera:

Rifampin, combined with other drugs, is used to treat TB.(26)

Januvia (sitagliptin), a type 2 diabetes anti-diabetic drug. (27)

It is critical to thoroughly study the ingredient list and nutrition information panel of a supplement to see which components are included and how much of each ingredient is included. Please discuss potential interactions with foods, other supplements, and medicines with your healthcare professional after reviewing the supplement label.

Medications Changed By The Liver (Cytochrome P450 3A4 (CYP3A4) Substrates) Interacts With Moringa Oleifera

The liver modifies and breaks down several drugs. Moringa oleifera may slow down the liver's ability to break down certain drugs. The results and side effects of certain drugs may alter as a result.

Levothyroxine (Synthroid, Others) Interacts With Moringa Oleifera

The body's absorption of levothyroxine may be reduced by moringa oleifera.

Levothyroxine's effects can be lessened if you take moringa at the same time. Medications changed by the liver (Cytochrome P450 3A4 (CYP3A4) substrates) interacts with MORINGA OLEIFERA

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> AVAILABLE FORMULATIONS:

Powder:

Moringa leaf powder is a most widely used product across the world Nearly every part of the moringa tree is edible. It is rich in antioxidants and other nutrients which are commonly missing in the diets of people living in undeveloped countries. When dried, its leaves can be ground into a fine powder that will keep many months without refrigeration.

For thousands of years the ancient Egyptians, Greeks, and Romans grew moringa. trees. In addition to calcium, iron and potassium, moringa leaves contain several important vitamins:

Vitamin A: which helps maintain healthy vision, immunity, and fetal growth Vitamin C: which protects the body from pollutants and toxins

Vitamin E: which acts as an antioxidant

Moringa powder can be used as an antiseptic to sterilize contaminated surfaces. It is effective against a wide range of bacteria and fungi, including those that cause gastric ulcers and gastric cancer.

Moringa powder is also used for treating various other diseases, from malaria and typhoid fever to hypertension and diabetes. Its broad variety of compounds are thought responsible for its beneficial effects.

Moringa powder is used as a medicine in multiple ways. It can help prevent and treat chronic diseases like inflammatory diseases, diabetes, and cancer. The benefits of moringa powder stem from its many plant-based compounds.

Hyperglycemia is an early warning sign of diabetes, while hyperglycemia is a risk factor for heart disease. Based on scientific data, moringa powder holds healing potential for both these ailments.

Other:

Tablets

Capsules

Gum/Gond

Juice

Ketchup etc.

VI. CONCLUSION

Moringa is considered as a nutrient-rich plant especially in its leaves. Such leaves might be used to combat malnutrition, especially among infants and nursing mothers. It was the goal of this mini-review to educate the public on the many benefits and qualities of the moringa oleifera plant, as a nutrient source .The purpose of this review article was to clarify any false beliefs and unknown information about the plant and educate society about its value by providing only reliable information .Moringa oleifera powder is a nutritional powerhouse with a wide range of potential health benefits. Its unique combination of vitamins, minerals, antioxidants, and bioactive compounds make it an effective supplement for various health conditions. Moringa oleifera powder has anti-inflammatory, antioxidant, and anti-cancer properties, making it a potential solution for chronic diseases such as diabetes, hypertension, and cancer. Its cardioprotective effects may help reduce the risk of cardiovascular disease, while its neuroprotective effects may help protect against neurodegenerative diseases.

Additionally, Moringa oleifera powder has antimicrobial properties, making it effective against certain bacterial and fungal infections. Its anti-diabetic properties may help regulate blood sugar levels, and its anti-inflammatory properties may help alleviate symptoms of arthritis and other inflammatory diseases. While more

research is needed to fully understand the effects of Moringa oleifera powder on human health, the existing evidence suggests that it is a safe and effective supplement. However, it is important to consult with a healthcare professional before adding Moringa oleifera powder to your supplement regimen, especially if you have any underlying health conditions or are taking medications.

Moringa oleifera powder is a nutrient-dense supplement with potential health benefits, including:

Anti-inflammatory and antioxidant effects

Cardioprotective and neuroprotective effects

Anti-cancer and anti-diabetic effects

Antimicrobial effects

Potential improvement in cognitive function and memory

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