



Moringa and its importance in human life

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Abstract

Moringa is commonly used in Indian folk medicine, and is often called the "miracle plant" because it is able to prevent and treat many diseases. Despite its strange name, Moringa is one of the most beneficial plants for the health of the whole family. Moringa is grown in tropical and subtropical regions such as the Himalayas in India, Pakistan, Bangladesh and Afghanistan. The lack or absence of side effects of this plant, we had to motivate people to use it because it is absolutely safe, as well as the ease of obtaining it. The benefit is found in all parts of the plant, from roots, stems and leaves.

Keywords Indian folk medicine, Miracle plant, Himalayas, Diseases

Introduction

The Moringa plant (scientific name: *Moringa oleifera*) belongs to the Moringaceae family, and it has several names, such as: ben oil tree or benzolive tree, and horse radish (Herbert,2012). All parts of the plant can be used; Such as roots, leaves, fruits, and bark, as well as flowers and juice, and this plant is available in the form of tablets, and is characterized by its light flavor and similar to the flavor of tea, and it can be added to smoothies and juices without affecting its taste, and it can also be used to make tea. Moringa supplements are available in the form of a light green powder, and this supplement consists of both the moringa leaf and its seed pods (Olson,2010).

Health benefits of moringa

The health benefits of Moringa can be explained in some detail as follows:

Asthma relief

A preliminary study published in the Indian Journal of Pharmacology in 2008 indicated that taking 3 grams of Moringa twice daily for three weeks may reduce the severity of asthma symptoms and improve lung function in adults with mild asthma. to medium (Radovich, 2011).

Reducing sugar levels

Some research indicates that taking Moringa in tablet form along with a sulfonylurea drug; It does not improve blood sugar control, but it may reduce blood sugar after a meal, in addition to reducing fasting blood sugar better compared to taking sulfonylurea medication alone in people with diabetes, and it was found that eating Moringa leaves with meals may reduce blood sugar levels. It is worth noting that the effect of Moringa in diabetes is still not proven, (Iqbal and Bhangar, 2006), and it is worth noting that the consumption of Moringa, which may reduce blood sugar, along with other medications Diabetes may lead to a significant drop in blood sugar, and therefore blood sugar levels must be monitored, with attention to the dose consumed, such as the drug Glimepiride, Glyburide, insulin, and others (Grubben, 2004).

Weight gain for people with AIDS

Moringa powder can be taken with meals for 6 months; It increases the body mass index (BMI) in people with AIDS, but it does not show an improvement in their immune system functions (Sogbo, 2006).

Reducing cholesterol levels

A laboratory study published in the Journal of Ethnopharmacology in 2008 indicated that Moringa leaf extract reduced cholesterol levels in the blood by 50%, and also reduced the accumulation of plaques in the blood vessels associated with atherosclerosis by 86%, and this result is similar to the effect of the drug Simvastatin (English: Simvastatin), and it has been shown that Moringa leaf extract may reduce the risk of cardiovascular diseases, reduce blood lipids, in addition to possessing antioxidant activity. It is worth noting that there is a need to conduct more studies on the relationship of Moringa reduces cholesterol in the blood (Amaglo, 2006).



Fig. 1 Moringa Flower

Enhance the production of breast milk

Some research indicates that the Moringa plant increases the production of breast milk, as a study published in the Journal of Medicine in 2000 showed that consumption of Moringa leaves increases milk production after 4 to 5 days of use, but this effect was not proven when Consumption of Moringa for a long period, On the other hand, some research indicates that there is no effect in increasing the production of breast milk when consumed for a long time, and it is worth noting that the consumption of moringa by nursing for several days to increase milk production may be safe, but it should be noted that There is enough information to prove the safety of its consumption by infants, so it is best to avoid consuming Moringa during breastfeeding (Peter, 2008).

Reducing malnutrition in children

A preliminary study published in the International Journal of scientific study in 2014 indicated that adding Moringa leaf powder to children's food for a period of two months improved their nutrition, as this plant is a good option to combat malnutrition. (Olson and Carlquist,2001). It contains a number of vitamins and minerals such as: B vitamins, calcium, iron, and potassium, in addition to its high content of amino acids, such as: methionine and cysteine, and Moringa is classified as one of the best food sources. As for

its percentage of carbohydrates, fats, and phosphorous, it is considered low (Qasim and Al-Mayali, 2019).

Reducing vitamin A deficiency

According to a study conducted on mice and published in the journal Plant Foods for Human Nutrition in 2001, it is possible for Moringa leaves to relieve vitamin A deficiency, because it is a good source of vitamin A, including its content of beta-carotene (Shabgah et al.,2021).

Reducing symptoms associated with menopause

Moringa extract may contribute to raising the proportion of antioxidants in women in menopause, as the proportion of antioxidants and enzymes at this stage is affected due to a decrease in the proportion of estrogen, and a preliminary study from Punjab Agricultural University in 2014 showed conducted on a group of postmenopausal women that taking 7 grams of the extract daily for 3 months increased the level of retinol by 8.8%, and it also significantly increased the level of antioxidants in their blood, and reduced oxidative stress by 16.3%, Which reflects positively on health, but more studies are needed to confirm this effect (Holmes and Kennedy,2000).

Reduce anemia

Moringa leaves may help absorb more iron, which is necessary for the formation of red blood cells, and a preliminary study published in the University of Pharmacognosy Journal in 2016 showed that ethanol extract from Moringa leaves had an effect reducing the risk of anemia due to its content of iron. Aniline (English: Aniline), as it increases the level of red blood cells, hemoglobin, hematocrit, and iron content in the blood.

Reducing Arthritis

A laboratory study published in Integrative Medicine Research in 2018 showed that Moringa extract may reduce the risk and severity of arthritis, and the ethanol extract of Moringa leaves has a role in relieving pain in mice with arthritis, depending on the dose, It is believed that ethanol extract may be used to relieve arthritis, and analgesic, in addition, it is possible for Moringa leaf extract to reduce pain, redness, and fluid retention in the event of rheumatoid arthritis, but there is a need to conduct more clinical studies, especially on humans (Schneider,2001).

Reducing epileptic seizures

A preliminary study from the University of Ibadan in 2013 indicated that the ethanol extract of Moringa leaves is believed to have antispasmodic and depressant properties of the central nervous system, by inhibiting the release of the neurotransmitter γ -amino butyric acid) or GABA for short, which is believed that Moringa extract may be used to improve the condition of epilepsy patients (Lea et al.,2010).

Heart disease

Moringa extract may help relieve dyslipidemia, a condition that is characterized by high levels of cholesterol, triglycerides, or both, and is associated with an increased risk of cardiovascular disease, according to what she indicated. His study was published in *Frontiers in Pharmacology* in 2012.

Reducing blood pressure

A study from the University of Karachi indicated that the ethanol extract of Moringa leaves has a lowering effect on blood pressure, in addition to that some elements and compounds extracted from Moringa, such as: Isothiocyanate and Thiocarbamate; Which is believed to have a lowering effect on high blood pressure. But it is worth noting that it is advised to pay attention to the consumption of Moringa, which may reduce high blood pressure, with drugs that lower blood pressure levels, such as: Enalapril (English: Enalapril) , amylodipine (English: Amlodipine), and others, and consult a doctor ([Rashid et al.,2008](#)).

Increasing sexual desire

A 2015 laboratory study from Khon Kaen University in Thailand indicated that consuming moringa leaf extract in low doses in mice exposed to stress may improve their sexual desire, as it can increase the level of testosterone ([Atawodi et al.,2010](#)).

Reducing peptic ulcers in the stomach and intestines

A study conducted on rats and published in the *Journal of Pharmaceutical Biology* in 2008 showed that the use of Moringa leaf extract significantly alleviated gastric ulcers that occur due to stress, and duodenal ulcers caused by cysteamine, in addition to Moringa leaves may reduce the risk of peptic ulcers, but on the other hand, the extract of its fruits did not have a noticeable effect in relieving ulcers ([Holmer et al.,2013](#)).

Reducing the risk of infections

It is believed that isothiocyanates found in Moringa leaves, pods, and seeds are the main anti-inflammatory compounds, but the research was limited to laboratory studies, and their anti-inflammatory effect has not yet been proven in humans, as a laboratory study published in the *Journal of Pharmaceutical Biology* in general was conducted. 2008, and stated that Moringa extract possesses analgesic and anti-inflammatory properties, and it can be used to reduce the risk of developing some diseases associated with these symptoms, and it is worth noting that inflammation is a natural protective reaction of the body when exposed to injury, or infection, However, these infections may constitute a major health problem for the body if they persist for a long period of time ([Ali et al.,2017](#)).

Reducing thyroid disorders

According to a preliminary study from Devi Ahilya University in 2000 conducted on rats, it was noted that consuming Moringa extract in low doses can regulate hyperthyroidism, by converting thyroxine, known as T4, into triglycerides. Triiodothyronine, or T3, which is important for the endocrine system ([Oyeyinka and Oyeyinka, 2018](#)).

Reducing constipation

Moringa helps reduce constipation, because it contains a large amount of fiber.

Reducing infection

Moringa can be used to reduce the symptoms of urinary tract infection (in English: Urinary Tract Infection), a small study from Banaras University in India in 2014 and conducted on 30 people showed that the consumption of Moringa bark by people with urinary tract infection improved Symptoms significantly increased in 66% of the participants, and it is worth noting that more studies are needed on a large sample, and a longer period of time to confirm this effect.

Reducing the risk of cancer

according to laboratory research; Taking the extract of the moringa herb for cancer slowed the growth of pancreatic cancer cells, and may also help improve the efficiency of chemotherapy, and other laboratory research indicates that moringa leaves, bark, and roots have an effect that reduces the risk of cancer, but there is no evidence to prove This effect is in humans.

Benefits of Moringa for slimming Although the effect of the Moringa herb for slimming has not been proven in humans, some evidence has stated that Moringa extract can reduce weight gain in mice, and can also help the body convert food into energy instead of storing it as fat, in addition. To improve their levels, and has contributed to lowering cholesterol, reducing high blood pressure, feeling unwell, and reducing the risk of infections, and Moringa's high content of vitamin B helps improve the efficiency of the digestion process, A preliminary study on mice and published In the 2016 *International Journal of Phytomedicine*, adding Moringa flour to rat food can reduce visceral fat, total and LDL cholesterol, and triglycerides, which is thought to reduce weight gain, and can be added to processed products to fortify it ([Chinma et al.,2014](#)).

Moringa content of nutrients

Vitamins and minerals

Moringa leaves contain phytochemicals in a high amount, which makes it a highly nutritious plant. Moringa provides 7 times the vitamin C found in oranges, 25 times the iron content of spinach, and 17 times the amount of calcium that it contains. It is provided by milk, as well as 9 times the milk content of protein, 10 times the vitamin A in carrots, in

addition to the potassium it provides, which is approximately 15 times that of bananas.

Antioxidants

Moringa is a source of antioxidants, such as vitamin C and vitamin A, that help reduce cell damage caused by free radicals, the increase of which results in oxidative stress associated with an increased risk of chronic diseases, such as: cancer and type diabetes. Second, heart disease, and vitamin C helps maintain the health of the immune system in the body, while vitamin A helps maintain the mucous membrane, which reduces infection in both the digestive and respiratory systems, and it is worth noting that it can be used Moringa as a food preservative, as it reduces oxidation processes and increases the shelf life of meat, (Chinma et al.,2014). In addition, Moringa contains other types of antioxidants, such as:

1. **Chlorogenic acid;** (English: Chlorogenic acid); Which helps control blood sugar levels after a meal, and is also present in large amounts in coffee, and a preliminary study from Punjab Agricultural University published in 2014, showed that women consuming approximately 7 grams of Moringa powder daily for three months reduced stress Oxidative stress, in addition to significantly lowering fasting blood sugar levels (Ali et al.,2017).
2. **Quercetin;** (English: Quercetin) It is a powerful antioxidant that may help reduce high blood pressure.

The nutritional value of the Moringa plant

The following table represents the nutritional value of one cup, or the equivalent of 21 grams, of uncooked Moringa leaves:

Table 1. Show nutrient and nutritional value of Moringa

Nutrient	Nutritional value
Water	16.5 ml
Calories	13.4 calories
Protein	1.97 g
Carbs	1.74 g
Fat	0.294 g
Fiber	0.42 g
Calcium	38.8 mg
Phosphorous	23.5 milligrams
Potassium	70.8 mg
Magnesium	8.82 milligrams
Iron	0.84 milligrams
Sodium	1.89 mg
Zinc	0.126 mg
Copper	0.022 milligrams
Manganese	0.223 milligrams
Selenium	0.189 µg
Vitamin	C 10.9 mg

Vitamin	B1 0.054 mg
Vitamin	B2 0.139 mg
Vitamin	B3 0.466 mg
Vitamin	B5 0.026 mg
Vitamin	B6 0.252 mg
Folate	8.4 micrograms

How to use Moringa

As for the method of using the moringa herb, it can be said that it varies according to the method of preparation, some people can add the leaves of the plant to food, or dry them and grind them to form a fine powder that can be added to foods or boiled with water and drunk, in addition to the possibility of extracting oil from the seeds of the moringa herb to be used topically on skin (Ali et al.,2017).

Moringa safety and precautions

Moderate consumption of Moringa leaves, fruits, and seeds is often considered safe, and the consumption of its leaves and seeds in medicinal doses for a short period is likely to be safe. Its roots and the extract of these roots, its consumption is likely to be unsafe, as it contains a toxic substance known as Spirochin, and the following are the warnings of the use of the Moringa plant for some cases and age groups:

Pregnant

The Moringa herb is potentially unsafe for pregnant women, as it contains chemicals that may lead to uterine contractions, and it is worth noting that there is not enough evidence about the safety of using other parts of Moringa during pregnancy, so it is preferable to be careful and avoid consuming it during this period. Period (Qasim and Al-Mayali, 2019).

Children

The consumption of Moringa leaves by children is considered potentially safe, when consumed for a short period of up to two months (Oyeyinka and Oyeyinka, 2018).

Drug interactions with moringa

Moringa can interact with some medications, including the following: (Oyeyinka and Oyeyinka, 2018).

Levothyroxine

Which is used for cases of hypothyroidism, and consumption of Moringa along with this drug may reduce the amount absorbed by the body, in addition to reducing its effect, so caution should be exercised and consult a doctor before taking Moringa with this drug.

Drugs that are metabolized in the liver

Moringa may reduce the speed at which the liver converts some drugs, which may increase side effects, such as lovastatin, ketoconazole, itraconazole, and fexofenadine. English: Fexofenadine), and others.

Conflict of Interest

The author hereby declares no conflict of interest.

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