

## Nutritional and Medicinal Importance of Moringa – A Review

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### ABSTRACT

*Moringa plant was first domesticated in India. It grows well in the subtropical and tropical zones in all around the world. It is also called as 'horseradish tree' or 'drumstick tree'. The ability of this plant is that it can tolerate both the mild frost and drought conditions and thus due to this reason, this is widely cultivated all around the world. Due to its high nutritional profile, every portion of this plant can be used as nutritional supplement or for the commercial purposes. The leaves of Moringa are very rich source of vitamins, minerals and phytochemicals. The leaf extracts of Moringa plant is mainly used for the treatment of malnutrition. It is also used to expand the quantity of breast milks in the lactating mothers. It is a good source as an anticancer, antioxidant, antimicrobial and antidiabetic agent. It is also used in the purification of drinking water and water treatment. In the market, there are many commercial products fortified with Moringa that are good treatment for the diseases of cancer and diabetes. Due to these specifications of this tree, this is also known as "Miracle Tree".*

**Keywords:** *Moringa, Nutritional Values, Vitamins, Minerals, Anti-cancerous Agent, Antidiabetic agent.*

### INTRODUCTION

*Moringa oleifera* belongs to the family Moringaceae and is very good treatment for the problems of malnutrition. Moringa is highly rich in phytochemicals which are abundantly present in its pods, seeds, leaves and stems. Because Moringa is highly adoptable to every soil and environmental condition, so it is easily cultivated and thus is considered as best remedy for the malnutrition (Anwar et al., 2018). Many poor countries like

Benin and Senegal always treat their children with the Moringa. The babies that are deprived of the breast feeding always show the problems of malnutrition. So to enhance the ability of breast milk production, lactogogues are recommended for the lactating mothers. This lactogogues is made up of phytosterols. These phytosterols enhance the enzyme activities which are helpful for the reproductive growth.

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Moringa plant is fully enriched with these phyosterols like sitosterols and stigmasterols. These chemicals increase the production of estrogen hormones which increase the production of more breast milk. So, this methodology is used to treat malnutrition. Approximately six spoonful of leaf powders

can compensate the amount of a lady's daily calcium and iron needs during the pregnancy (Anwar & Bhangar, 2010). In this review, we shall discuss the nutritional and medicinal importance of Moringa. The picture of Moringa plant is given below in Figure 1.



**Figure 1: Picture of Moringa leaves, pods and leaves extract**

(Source: [https://www.google.com/search?q=moringa+images&source=lnms&tbn=isch&sa=X&ved=2ahUKEwimn4WfqPXtAhWnQkEAHUySAhoQ\\_AUoAXoECBwQAw&biw=1366&bih=657#imgrc=eMXqDv1P4guMjM](https://www.google.com/search?q=moringa+images&source=lnms&tbn=isch&sa=X&ved=2ahUKEwimn4WfqPXtAhWnQkEAHUySAhoQ_AUoAXoECBwQAw&biw=1366&bih=657#imgrc=eMXqDv1P4guMjM))

### **Nutritional Importance**

Every portion of the Moringa is fully enriched with vital antinutrients and nutrients. The leaves portion of Moringa is very rich in minerals like potassium, iron, copper and many others. Different kinds of vitamins which include vitamin-A, vitamin-K, vitamin-B and folic acid are present in the leaves of Moringa (Bashir et al., 2005). Different phytochemicals mainly sterols, tannins, saponins, alkaloids and flavonoids are present in the Moringa plant and different anti-cancerous chemicals are also present inside the Moringa plant. These chemicals include glucosinolates, glycosides and many others. Moringa plant has low energy level so it is a good source of food for the obese people. The pods of Moringa are also very useful and fully enriched with fibers. These are good remedies for the diseases of thwart colons cancer and

digestive problems. Some researchers found that immature type of pods consists of about 47% fibers and 21% protein contents. The pods of Moringa contain about 31% amino acids, flowers contain 32% and leaves contain about 45% amino acids. The pod and flower contain high amount of linolenic acid, linoleic acid and palmitic acid. There is great abundance of minerals present inside Moringa, one of them the most important is calcium. Calcium is highly important for the growth and nourishment. About 9 ounces of milk give 300 mg of calcium but leaves of Moringa can give up to 4000 mg of calcium. The powder of Moringa leaves can be used as an alternative remedy for iron deficiency in disease of anemia. It is analyzed in the laboratory that Moringa has more iron than spinach. Moringa has also good amount of zinc which is highly important for proper growth of sperms and

DNA/RNA repairing. PUFAs include linolenic acid, linoleic acid and oleic acid and these acids are able to control the cholesterol levels. Moringa plant has about 77% PUFA contents which makes it able as an alternative for olive oil. The amount of presence of different minerals depends on the climatic conditions, environmental conditions and locality conditions (Bennett et al., 2014).

### **Medicinal Importance**

Moringa plant is also called as panacea. It is utilized to treat more than 300 diseases. It has been used for a longer period of time as herbal remedy by Africans and Indians. The existence of abundant phytochemicals gives it a good rank of medicinal agent. Now, we discuss the roles of Moringa as anti-diabetic and anti-cancerous agents. Moringa has depicted positive signs to treat both the Type 1 and Type 2 diabetes. Type 1 is that type of diabetes in which there is no any production of insulin and this insulin is the hormone which regulates the blood glucose level to its normal level. Type 2 diabetes is that type in which due to  $\beta$ -cell dysfunction the system of the body fails to recognize the hormone signaling, hence the hormone does not release and fails to regulate the blood glucose levels. Many researchers found that Moringa plant has a vital role as an anti-diabetic agent. An analysis showed that this Moringa in aqueous solution has been proved to be a good cure against Type 1 and Type 2 diabetes. Moringa plant is also used as anti-cancerous agent as it has good properties and can overcome the problems of cancers (Bharalli et al., 2018). Cancer is a very common disease. But there are no special reasons behind this disease. Many factors like lack of exercise, smoking and exposure to radiations may lead towards this disease. The remedies selected to cure this disease like chemotherapy, surgery and radiation exposures are highly expensive and have many lethal side effects. Moringa can be utilized as anti-cancerous agent which is naturally produced and is totally safe, well and reliable. It can be utilized as an anti-cancerous agent. There is a specific ability of Moringa in which it acts like anti-neoproliferative agent and

stops the development of cancer cells. Extracts obtained from leaves of Moringa and by dissolving those in aqueous solution have been proved very well to combat against cancerous cells. Moringa plant is also utilized as the neuroprotectant agent. Cerebral ischemia results due to the hindrances of blood circulation in the brain. This leads to the release of reactive oxygen species which cause the lipid peroxidation that is very harmful for the human brain. If Moringa is utilized, it can block the activity of ROS by stopping their production. It is also helpful in treating the dementia. Because it has promoter like effect in spatial memory. The Moringa leaves are used to lower the acetylcholine esterase activity by improving the memory level. It is also tested in laboratories that Moringa is also helpful in treating the renal tract problems and different dysfunctions. It is also used as antiulcer agent. Moringa is also helpful for the patients suffering from AIDS. The patients with HIV virus are fed with Moringa to hinder the growth of virus (Bhatnagar et al., 2010).

### **CONCLUSION**

From the above discussion, it is concluded that Moringa plant is a miracle plant. It has numerous health and medicinal benefits. It is used to cure more than 300 diseases. It is rich in minerals, vitamins, proteins, fats and phytochemicals. It is a good source of food for the obese persons as it has low calorie levels. It has different phytochemicals which make it highly valuable for medicinal purposes. It is also used for the treatment of AIDS, cancer, diabetes, ulcer and renal tract problems. Moringa is also rich in minerals like calcium which is need of the human being for growth. Moringa provides most of calcium by its Moringa powder. Moringa has also good activity when used by brain patients as it repairs the memory loss by stopping the release of reactive oxygen species. Hence, Moringa has many health aspects, so it should be cultivated widely and utilized daily.

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