



## The Nutritional Value of Moringa

*Moringa* tree contains many nutrients such as essential vitamins, essential minerals, amino acids, beta-carotene, anti-oxidants, anti-inflammatory nutrients, phytochemicals and it also contains both omega-3 and omega-6 fatty acids (Kasolo NJ et al).

The leaves are highly nutritious, being a significant source of beta-carotene, Vitamin C, protein, iron, and potassium. The leaves are cooked and used like spinach. In addition to being used fresh as a substitute for greens, its leaves are commonly dried and crushed into a powder, and used in soups and sauces. The tree is a good source for calcium and phosphorus.

Moringa leaves and pods are helpful in increasing breast milk in the breastfeeding months. One tablespoon of leaf powder can provide 14% of the protein, 40% of the calcium, 23% of the iron and most of the vitamin A needs of a child aged one to three. Six tablespoons of leaf powder will provide nearly all of the woman's daily iron and calcium needs during pregnancy and breastfeeding. The moringa seeds yield 38–40% edible oil. The refined oil is clear, odorless, and resists rancidity at least as well as any other botanical oil. The seed cake remaining after oil extraction may be used as a fertilizer or as a flocculent that forms the particles into a solid to purify water. The bark, sap, roots, leaves, seeds, oil, and flowers are used in traditional medicine in several countries. The sap is used for a blue dye.

The nutrients are very important for health and vitality. Because *M. oleifera* contains so many essential nutrients, virtually all the different parts of the tree are being used by locals in different countries for a variety of nutritional, medicinal, and purification purposes. It is advisable not to consume the root since researchers have determined that the root is toxic and contains chemicals that can paralyze nerves.

*M. oleifera* is sometimes referred to as the "Tree of Life" because of its potential to help with malnutrition around the world. This species is also recognized by other names in different cultures. Here are some examples of names that *M. oleifera* is known as in different countries: Zingeridende (Ghana), Odudu oyibo (Nigeria), Moltong (Indonesia) Drumstick tree (U.K.), Sajna (India), Malunggay (Philippines), Mlonge, Mkimbo, (Kenya), and Nebeday (Senegal). It is also identified as horseradish, drumstick, or ben oil tree (Stephenson KK ET. Al).

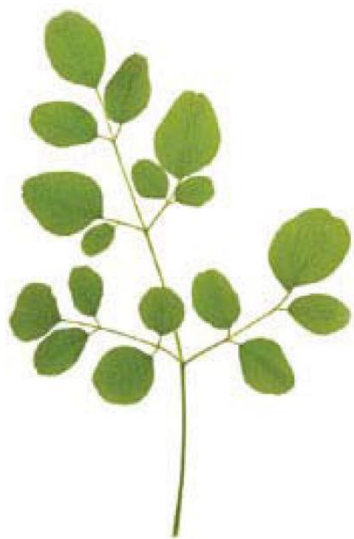
### Information Specific to Malnutrition:

Moringa trees have been used to combat malnutrition, especially among infants and nursing mothers. Three non-governmental organizations in particular have advocated Moringa as "natural nutrition for the tropics." Leaves can be eaten fresh, cooked, or stored as dried powder for many months without refrigeration, and reportedly without loss of nutritional value. Moringa is especially promising as a food source in the tropics because the tree is in full leaf at the end of the dry season when other foods are typically scarce.

A large number of reports on the nutritional qualities of Moringa now exist in both the scientific and the popular literature. It is commonly said that Moringa leaves contain more Vitamin A than carrots, more calcium than milk, more iron than spinach, more Vitamin C than oranges, and more potassium than bananas," and that the protein quality of Moringa leaves rivals that of milk

and eggs. The oral histories recorded by Lowell Fuglie in Senegal and throughout West Africa report countless instances of lifesaving nutritional rescue that are attributed to Moringa. In fact, 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. Nonetheless, the outcomes of well-controlled and well-documented clinical studies would still be clearly of great value.

**Comparative Nutrition:**



Tiny leaves.

Enormous benefits.

=

7 times the Vitamin C of Oranges



4 times the Vitamin A of Carrots



4 times the Calcium of Milk



3 times the Potassium of Bananas



2 times the Protein of Yogurt



Gram-for-gram comparison of nutritional data<sup>1</sup>

**Vitamins and Minerals**

Vitamin A  
 Vitamin C  
 Calcium  
 Potassium  
 Protein

**Moringa Leaves**

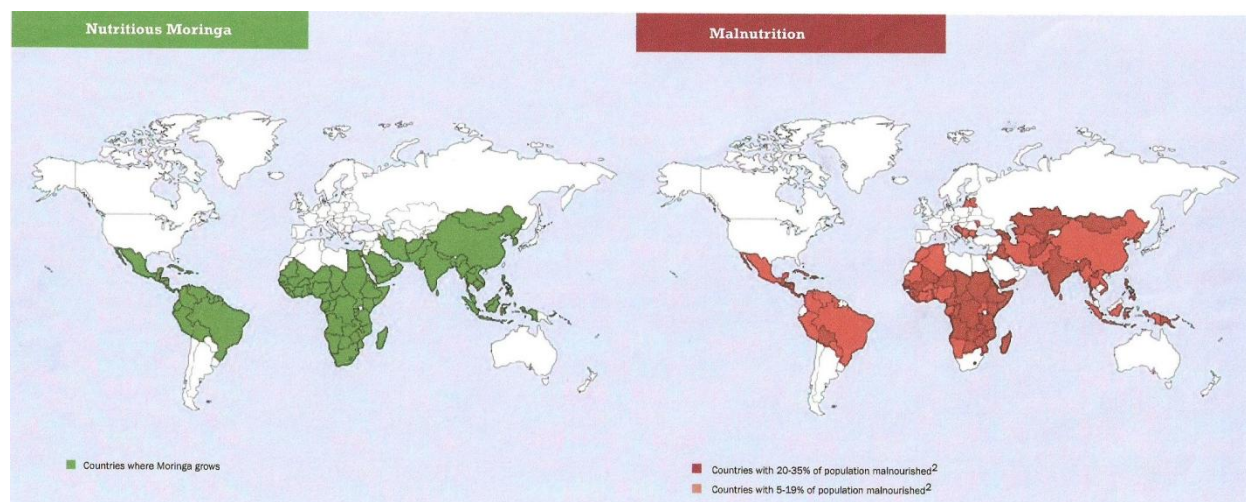
6780 mcg  
 220 mg  
 440 mg  
 259 mg  
 6.7 mg

**Other Food**

Carrots: 1890 mcg  
 Oranges: 30 mg  
 Cow's milk: 120 mg  
 Bananas: 88 mg  
 Cow's milk: 3.2 mg

Moringa trees also contains Vitamin B1, Vitamin B2, Vitamin B3, chromium, copper, fiber, iron, manganese, magnesium, phosphorus, potassium, and zinc.

## Combating Malnutrition:



In 1997-98, Alternative Action for African Development (AGADA) and Church World Service tested the ability of Moringa leaf powder to prevent or cure malnutrition in pregnant or breast-feeding women and their children in Senegal. Malnutrition was a major problem in this area, with more than 600 malnourished infants treated every year. During the test, doctors, nurses, and midwives were trained in preparing and using Moringa leaf powder for treating malnutrition. Village women were also trained in the preparation and use of Moringa leaf powder in foods.

This test found the following effects to be common among subjects taking Moringa leaf powder:

1. Children maintained or increased their weight and improved overall health
2. Pregnant women recovered from anemia and had babies with higher birth weights
3. Breast-feeding women increased their production of milk
- 4.

The Moringa tree is an excellent source for certain vitamins, minerals, protein and other nutrients that can be useful for a person's healthy body and physical being. These nutrients and can be a valuable source for many people of the African sub-region. Just 100 grams of fresh leaves will provide a child ages 1-3 with all his daily requirements for calcium, about 75% of his iron and about half of his protein needs, as well as potassium, B vitamins, copper and all the essential amino acids. For a pregnant or breast-feeding woman, 10 grams of fresh leaves can supply over a third of her daily calcium requirements as well as provide necessary quantities of iron, protein, copper, sulfur and B vitamins.