

Miraculous Murunga Tree



Moringa oleifera (MO) or Murunga is a fast growing, slender trunked deciduous plant native to tropical Asia. It is also known as drumstick, miracle, or never-die tree, because its uses seem to be endless, and trees might survive even in high altitudes or dry and arid desert conditions. Scientists have discovered that each part of this marvelous tree has a unique chemical composition. Thus Murunga has attained fame as a natural medicinal pill to cure various diseases. MO has been used as a traditional medicine to heal skin infections, anxiety, asthma, wounds, fever, diarrhea and sore throats.

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Phytochemistry of MO

Phytochemicals are known as special chemical compounds, which are produced by plants through primary and secondary metabolic pathways. Phytochemicals (e.g. flavonoids, alkaloids, phytosterols, phytophenols, terpenoids) present in MO play a vital role in improving health due to their medicinal and pharmacological properties. Over 100 phytochemicals have been isolated from various parts of MO and the chemical composition of each part is used to determine the relevant applications.

Leaves

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Iron	3 times iron of spinach
Vitamin C	7 times vitamin C of orange
Vitamin A	4 times vitamin A of carrots
Potassium	3 times potassium of banana
Calcium	4 times calcium of milk
Proteins	2 times proteins of yogurt



Isothiocyanates in MO leaves are used as anticancer, antidiabetic, antimicrobial and anti-inflammation agents, and nitrile glycosides (e.g. niazirin, niaziridin) as anti-hypertension and anticancer drugs. Flavanols (e.g. quercetin, kaempferol, rutin, rhamnetin) and phenolic acids (e.g. gallic acid, ellagic acid, ferulic acid, caffeic acid) act as antioxidants that stabilize radicles produced in the living cells. The concentrations of flavanol quercetin present in the leaves are as high as 100 mg/100 g, which is important to maintain the normal blood pressure. Alkaloids, marumosiide A and B act as antioxidants and anti-inflammatory agents whilst a pyrrole-based alkaloid as a cytokinin phytohormone. Zeatin in MO leaves slow-down the aging process, and saponins act as a libido enhancer. MO has the energy boosting ability and increases the muscle, heart and brain functions. MO leaves act as

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a bio-cleaner in our body system by increasing the fecal excretion of cholesterol and flushing toxins from kidneys. Filipinos refer MO as “mother’s best friend”, because its leaves increase the milk excretion in breast-feeding mothers.

Flowers

Yellowish white colored, bisexual, mild fragrant MO flower contains high content of calcium and potassium, as well as nine amino acids, sugars such as D glucose, sucrose etc., waxes, and couple of flavanols (kaempferol and quercetin). It has a higher medicinal value and is used for curing tumors, muscle diseases, inflammations, hysteria etc.



Pods

“Drumstick” is another name to introduce pods of MO due to its appearance. These edible pods are highly fibrous and contains thiocarbamates, isothiocyanate glycosides and poly unsaturated fatty acids (PUFA). Isothiocyanate glycosides help to maintain healthy blood sugar level, while PUFAs elevate the healthy lipid level or HDL. Fibrous nature of MO pods is important to maintain healthy digestive system.



Seeds

“Ben oil” can be extracted from seeds and it contains fatty acids with sweet, non-sticking, non-drying and rancidity resistant properties. Therefore, it is used as a cooking oil as well as to produce cosmetic products such as perfumes, hair dressings, and lubricant for machines.

Pterygospermin is a special compound present in the seed which has antimicrobial properties. Due to its disinfection nature, MO seeds are used in wastewater treatment processes instead of Alum. These seeds act as bio sorbents; hence, they remove heavy metals such as Cu, As, Cr and Cd from water bodies.



Most people consume MO seeds the same way as peas or roasted nuts, because they contain high levels of vitamin C, moderate amounts of B vitamins, amino acids and dietary minerals. The presence of tannins, saponins, phenolics, phytates, flavonoids, terpenoids and lectins also play different favorable roles to improve people’s health.

Root and stem

Root extract shows favorable impact on neuro-transmittance and properties of sex-hormones. Juice or extracts taken from



MO root is a good medicine for asthma, liver and spleen expansion. Filipinos use juice of scraped trunk to treat cuts on their skin. The chemical composition in the bark showed antifungal and antibacterial properties.

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Ways of Consuming

It is important to know the ways of consuming the edible parts (e.g. leaves, flowers, seeds and pods) without destroying its nutritional value. We all have tried delicious drumstick curry; you may try powdered leaves in a hot liquid drink (like green tea); fresh leaves in a smoothie with other fruits; soup with other vegetables/meat or stir-fried fresh leaves. Recommended dosage for an adult per day is 3 g (ca. one teaspoon) of leaf powder or 1.5 g of seed powder or root powder. Without any doubt, Murunga tree can be called the miracle tree due to its miraculous medicinal values.

Prof. K. Sarath D. Perera
Department of Chemistry,
Faculty of Natural Sciences