

Medicinal Tree Moringa Oleifera : A Geographical Analysis

***Dr. Yogesh Kumar Sabal**

Abstract

Origin and geographical distribution moringa is indigenous in northern India and Pakistan. It has been introduced through out to the tropics and subtropics and has become naturalized in many African countries.

Moringa Oleifera indicates that this plant might have a pleiotropic therapeutic efficacy against most human ailments. In fact, M. Oleifera is reported to have several pharmacological activities, including antioxidant, antibacterial, antifungal, antidiabetic, antipyretic, antiulcer, antispasmodic, antihypertensive, antitumor, hepatoprotective and cardiac stimulant properties.

Keywords :- Subtropic, Antioxidants, Drumstick Tree, Nutrients, Indigenous, Water Purifying, Biodiesel.

Introduction : - Moringa Oleifera Lam is known as the drumstick tree or horseradish tree. It belongs to the genus Moringa, which has 13 different species. It is small deciduous tree usually 5-10 m. tall but some times up to 15m. With a light feathery canopy. It is native to India. Nevertheless, Nigeria, the Pacific Island, the Caribbean, the Phillipines, South Africa, Asia, Florida and Latin America are widely grown.

Moringa Oleifera belonging to the family of Moringaceae is an effective remedy for malnutrition. Moringa is rich in nutrition owing to the presence of a variety of essential phytochemicals present in its leaves, pods and seeds. Moringa is said to provide Vitamins (A, C), calcium, protein, potassium and iron. The moringa is easily cultivate make it is sustainable remedy for malnutrition (Lakshmi Priya Gopalkrishna et al. 2016)

M. Oleifera is very important for its medicinal value. Various parts of this plant such as the leaves, roots, seeds, bark, fruit, flowers and immature pods act as cardiac and circulatory stimulants possess antitumor, antipyretic, antiepileptic, antiinflammatory, antiulcer, antibacterial, antioxidant, antifungal activities, anti diabetic and are being employed for the indigenous system of medicine, particularly in South Asia.

The result of the investigation show that all part of the species i.e. base, middle and the top can be utilised for pulp and paper production. The species is a potential material for the pulp and paper production. (Areo, O. S, Adeoba et al.)

The analytic output shows the seed oil has favourable characteristics for use as biodiesel. The fatty acid composition of the oil makes it suitable for both edible and non edible application.

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Object of the Research :- The main objective of the research paper is to make the common man aware of the medicinal importance of the miraculous tree Moringa Oleifera, which grows in difficult climatic conditions

Review of literature :- "A Review on Nutritive importance and its Medicinal Application" (Lakshmi priya Gopalkrishnan et al. 2016) At higher temperature proteins and enzymes get denatured and this could be the cause for the difference in nutrients content. According to study of "Utilization of Moringa Oleifera oil for Biodiesel Production : A Systematic Review" by Omonhinmin, C et al. (2020) Biodiesel produced from M. Oleifera seed oil exhibit enhanced oxidative ability, high cloud point and a higher cetane number of approximately 67 than for most biodiesel. Moringa Oleifera biodiesel can be stored for a long period of time and it is safe for transport.

The study "Crop tolerance to Suboptimal Land condition" Duke, J. E. (1978) Moringa grows in ecologies ranging from subtropical dry to moist through tropical very to moist forest life zones.

In the chapter "Introduction to the Moringa family : Origin, Distribution and Biodiversity (2019) Analyse the relationship of the moringa family to the rest of the flowering plants and discuss the relationship of the species of moringa to each other.

Geographical condition for M. Olifera

Moringa Oleifera is the most widely cultivated species of the genus moringa, which is the only genus in the family Moringaceae. English common name include : Moringa, drumstick tree (from appearance of the long, slender triangular seed pods), horseradish tree (from The test of the roots, which resemble horseradish) Ben oil tree or benzoyl tree (from the oil which is derived from the seeds). It is drought resistant and fast growing tree, native to the southern foothills of the Himalayas in North Western India and widely cultivated in tropical and subtropical areas.(U. Spandana et al. 2016)

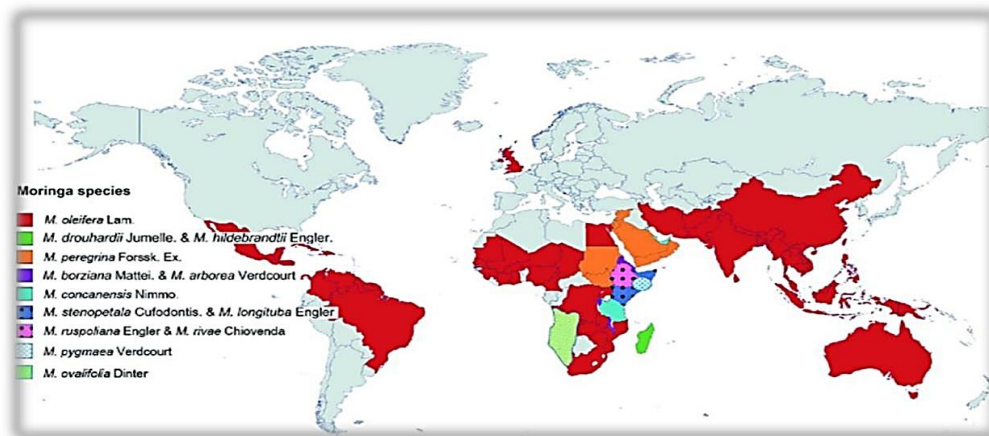
Geographical Distribution of Moringa Species

S. No.	Species	Distribution	Tree Type
1.	M. Consanesis	India	Slender Tree
2.	M. Olifera	India	
3.	M. Peregrine	Fiori Red Sea, Arabia, Horn of Africa	
4.	M. Drouhardii	Madagascar	Bottle Tree
5.	M. Hildebrandtii	Madagascar	
6.	M. Ovalifolia	Namibia and S. W. Angola	
7.	M. Stenopetala	Kenya and Ethiopia	Tuberous, Shrubs and Herbs of North Eastern Africa
8.	M. Arborea	North Western Kenya	
9.	M. Borziana	Kenya and Somalia	
10.	M. Longituba	Kenya, Etiopia and Somalia	
11.	M. Pygmaea	North Somalia	
12.	M. Rivae	Kenya and Ethiopia	
13.	M. Ruspoliana	Kenya, Etiopia and Somalia	

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Geographical Distribution of Moringa Species



Precipitation :- Moringa is reported to tolerate annual precipitation of 760 to 2250 mm., annual temperature of 18.7 to 28.5° C and soil pH 4.5 to 8.0. Moringa perform best only dry sandy soil, but grows in all types of soil expect heavy clays. (Manuel C. Palada 2019)

Medicinal Properties:- Every part of *M. Oleifera* is a storehouse of important nutrients. The leaves of *M. Oleifera* are rich in minerals like - calcium, potassium, zinc, magnesium, iron and copper. Vitamins contents like - A,B,C,D,E and phytochemicals.

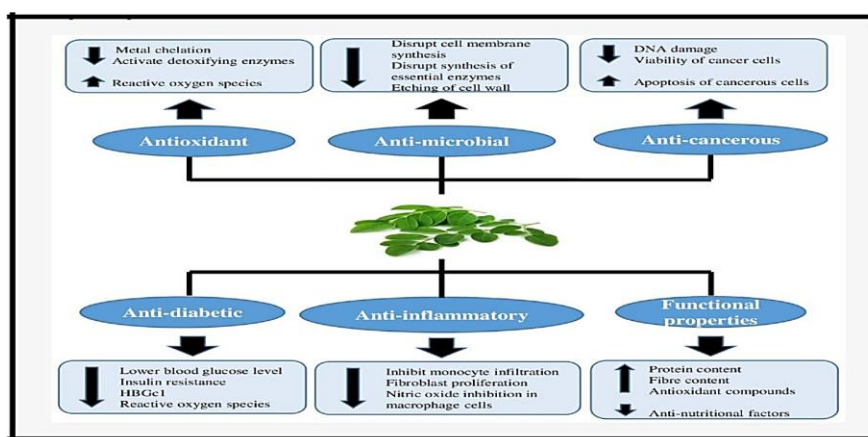
1. Moringa powder can be used as a substitute for iron tablets hence a treatment for anaemia. It has been reported that Moringa contains more iron than spinach. (LakshmiPriya et al. 2016)
2. Anti diabetic activities :- Moringa leaves significantly reduce blood glucose concentration, leaves are potent source of polyphenols responsible for hypo glyceic activities. The extract from its leaf decrease sugar level in the blood within 3 hour after Intake. (Tirna Purkait et al. 2020)
3. Antioxidant activity :- It is reported that the major bioactive compounds of phenolics, such as quercetin and kaempferol are responsible for anti oxidant activity (Bajpayi et al.2005)
4. Anti microbial activity :- Leaves, root, bark, and seed of *M. Oleifera* have anti microbial activity against bacteria (bacillus Cerous, Candida Albicans, Bacillus Subtillis, Shigela Senei etc.)
5. Anti cancer activities :- Cancer is common disease, several factors like - smoking, lake of exercise and radiation exposure can lead to the disease. Research show that the reactive oxygen species induced the cell leads to apoptosis. More ever the ROS production by Moringa is specific and targets only cancer cells, making it an ideal anti cancer agent. (Tiloke et al.)

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6. Cardiovascular activity :- Ethanolic extract of Moringa leaves showed anti-hypertensive and hypotensive activity. (Shamim et al. 2018)

In the study results that Moringa Oleifera leaves, root and bark extract use in anti-fertility (aqueous), analgesic (methanolic), antiurolithiatic (aqueous), anti asthmatic (alcoholic), antiulcer (aqueous) and other disease.



Conclusion

The origin of the plant is traceable to sub Himalayan tracts of India, Pakistan, Bangladesh and Afghanistan. Moringa Oleifera trees is widely cultivated in the tropics and subtropics making it most cultivated tree of the 13 common species of the Moringaceae family.

Moringa Oleifera leaves, seeds, bark, roots, sap, flowers are widely used in traditional medicine and the leaves and immature seed pods are used as food products in human nutrition. Lack of knowledge in developing countries M. Oleifera used as fodder and fuel.

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