

A Sustainable Natural Resources (*Moringa Oleifera*) in Tropical and Subtropical Areas: An Intensive Literature Review

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Introduction

- ❖ *Moringa Oleifera* (*M. Oleifera*) is a species of the Moringaceae family and mostly available in the tropical and subtropical areas including Bangladesh, Nepal, India, Pakistan also some African countries.
- ❖ *M. Oleifera* is widely contributing in the field of food, feed, agriculture and medicine as well as for the development of sustainable aquaculture.
- ❖ *M. Oleifera* trees have been advocated by the Educational Concerns for Hunger Organization as a “natural nutrition for the tropics”- especially for infants and nursing mothers.
- ❖ Based on scientific research evidence, *M. Oleifera* has multidimensional functionalities including anti-oxidant, anti-diabetics, anti-bacterial and preservative activities.

Functionalities of *M. Oleifera*

| Parts of <i>Moringa</i> | Functionalities | Applications |
|-------------------------|---|--|
| Leaves | - Anti-microbial - Anti-diabetic - Anti-oxidant | - Food supplement - Animal feed - Fertilizer (green) |
| Flowers | Act as: - Anti-arthritis agents - Hypocholesterolemic | - Food fortification - Tea |
| Pods | Act against: - Diarrhea - Liver problems | - Use as traditional food (vegetable) |
| Seeds | - Coagulation - Anti-bacterial - Anti-inflammatory | - Water purification - Fertilizer (oil cake) |
| Root | - Anti-Ulcer - Anti-inflammatory | - Preservative - Condiments - Used in aquaculture |

All About *M. Oleifera*

Leaves:

M. Oleifera leaves are highly nutritious and it contains different minerals, vitamins, proteins & antioxidant etc. as well as various functionalities including anti-oxidant, anti-diabetics, anti-cancer and anti-microbial activities.

Flowers:

M. Oleifera flowers act as anti-arthritis agents and Hypocholesterolemic agent. It also contains amino acids, minerals, fiber etc. *M. Oleifera* flowers are used as traditional vegetables and tea, it also can be applied in food fortification.

Pods:

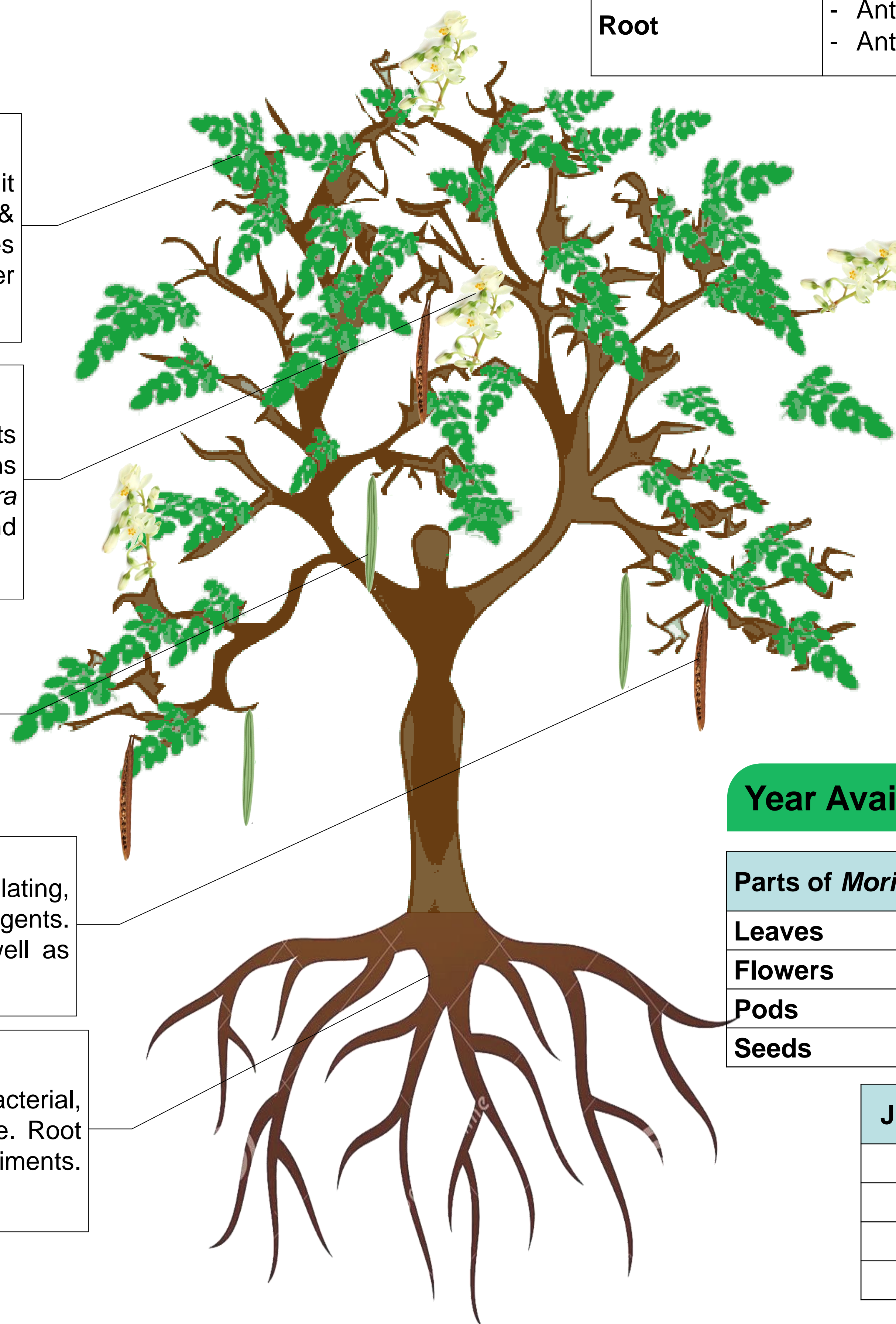
M. Oleifera pods act against diarrhea and liver problems etc. *Moringa* pods are contains ash, protein, fiber and fatty acids etc. It also being used as traditional vegetables.

Seeds:

M. Oleifera seeds are acting as coagulating, antibiotic, anti-bacterial and anti-inflammatory agents. It can also applied in water purification as well as fertilizer in agriculture.

Root:

M. Oleifera root is acting as anti-ulcer, anti-bacterial, anti-inflammatory agents and organic piscicide. Root extracts can be used as preservative and condiments. It can also applied in sustainable aquaculture.



Dry *M. Oleifera* Leaf Contains

| Foods | 100 gm dry <i>M. Oleifera</i> |
|-------|---------------------------------------|
| | 10 times than the Vitamin A of Carrot |
| | 12 times than the Vitamin C of Orange |
| | 17 times than the Calcium of Milk |
| | 15 times than the Potassium of Banana |
| | 25 times than the Iron of Spinach |

Year Availability of *M. Oleifera*

| Parts of <i>Moringa</i> | JAN | FEB | MAR | APR | MAY | JUN |
|-------------------------|-----|-----|-----|-----|-----|-----|
| Leaves | X | X | X | X | X | X |
| Flowers | | | | X | X | X |
| Pods | X | X | X | X | X | X |
| Seeds | X | X | X | X | | |

| JUL | AUG | SEP | OCT | NOV | DEC | Parts |
|-----|-----|-----|-----|-----|-----|---------|
| X | X | X | X | X | X | Leaves |
| X | X | | | | | Flowers |
| X | X | X | X | X | X | Pods |
| | | X | X | X | X | Seeds |

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Conclusions

- ❖ *M. Oleifera* has been scientifically recognized as a super food for its multidimensional activities, especially in the tropical and subtropical region.
- ❖ On the other hand, *M. Oleifera* being mostly discussed topic as an underutilized plant, although it has various functionalities.
- ❖ This review research deliver the key indications and a justified background for the future agricultural research which could lead the sustainable economic development.



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