Egyptian Herbal Monograph

Volume 1

Traditional wild medicinal plants

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Moringa peregrina (Forssk.) Fiori حب اليسار

1. Names & Synonyms

Moringa peregrina (Forssk.) Fiori (1,2).
Family: Moringaceae (3).
Syns. *Hyperanthera peregrina* Forssk.
Moringa aptera Gaertn., Fruct.
Moringa arabica Pers., Syn. (3).
Arabic: Yasaar يسار , El-Baan البان , Habb El-Yasaar (seeds) حب اليسار (البذور) (3).
English: Ben-oil tree, Horse radish tree, Ben nut (seed), Moringa (1, 3).

2. Geographical distribution

Desert east of the Nile including that of Sinai, Red Sea region and Gebel Elba (1, 3).

3. Parts used for medicinal purposes

All parts of the plant (seeds, leaves, stems and tubers) (1, 3).

4. Major chemical constituents (3)

- *M. peregrina* leaves contained numerous bioactive phyto-constituents belonging to various classes such as tannins, glycosides, alkaloids, flavonoids, steroids, sterols/ triterpenes and saponins (4).

- **Fatty Acids:** Oleic acid was identified as the major one, palmitic, stearic, behenic, palmitoleic, arachidic, eicosenoic, lingnoceric, linoleic, margaric, myristic, margaroleic and linolenic acids were also detected. Furthermore, sterol composition analysis of the oil showed that β-sitosterol was the major one followed by stigmasterol, campesterol and Δ-5-avenasterol (5).

- **Phenolic Compounds:** Gallic, protocatechuic, 4-hydroxybenzoic, caffeic, syringic, trans *p*-coumaric, chlorogenic and trans- ferulic acids as well as catechin (6).

- **Triterpenoids:** Lupeol acetate, β-amyrin and α-amyrin.

- **Flavonoidal compounds:** Quercetin, chrysoeriol-7-O-rhamnoside, apigenin, rhamnetin, Quercetin-3-*O*-rutinoside, rhamnetin-3-*O*-rutinoside and 6-methoxy-acacetin-8-C-β-glucoside (7).

- **Isothiocyanates:** Benzyl isothiocyanate, 2-propyl isothiocyanate, 2- butyl isothiocyanate, 2-methylpropyl isothiocyanate, 4(a-L-rhamnosyloxy) benzyl isothiocyanate, 4-(4′-O-acetyl-a-L-rhamnosyloxy benzyl isothiocyanate, glucosinolate and 5,5-dimethyloxazolidine- 2-thione from the seeds (8).

- **Nitrile glycosides:** Niazirin, niazirinin and 4-(4′-*O*-methyl-α-L-rhamnosyloxy benzyl nitrile).

5. Traditional medicinal uses (9, 10)

Ancient Egyptians were using *M. peregrina* for thousands of years to maintain their skin health and mental fitness.

A. Increasing appetite and to treat slimness.
B. Anti-constipation.
C. Headache, fever, abdominal pain, burns, back and muscle pains and during labor.
D. Soothe rash.

***M. peregrina* is a traditional medicinal plant for use in the specified indications exclusively based upon long-standing use.**

6. Herbal preparations correlated to medicinal use (10)

1. Jam of several constituents cooked in black honey.
2. Decoction: add 2 teaspoonful of seeds in a pot, pour cold water, boil and simmer for 10 minutes then pour into a cup and drink it.
3. The seed oil.
4. The seed oil.
5. The leaf extract.

7. Posology and method of administration correlated to medicinal use (10)

Method of administration: Oral use**.**
M. peregrina hot decoction is taken in the morning before breakfast.

Method of administration: Topical use.
The leaf extract and oil are rubbed over the skin.

Duration of use:
If the symptoms persist longer than 2 weeks during the use of the medicinal product, a doctor or a pharmacist should be consulted.

8. Contraindications

Hypersensitivity to active substances and to other plants of the same family.

9. Special warnings and precautions for use

If the symptoms worsen during the use of the medicinal product, a doctor or a pharmacist should be consulted.

10. Interactions with other medicinal products and other forms of interaction

None reported.

11. Fertility, pregnancy and lactation

- Safety during pregnancy and lactation has not been established. In the absence of sufficient data, the use during pregnancy and lactation is not recommended.
- No fertility data available.

12. Effects on ability to drive and use machines

No studies on the effect on the ability to drive and use machines have been performed.

13. Undesirable effects

- None known.
- If adverse reactions occur, a doctor or a pharmacist should be consulted.

14. Overdose

No case of overdose has been reported.

15. Relevant biological activities

- The antimicrobial potential of *M. peregrina* seed oil was studied (11). The results indicated that the oil was effective against all the tested microorganisms (bacterial and fungal strains). Antimicrobial activity of ethanol extract of leaves, seed coat and endosperm of the plant were also studied. The leaf extract of *M. peregrina* showed good antibacterial activity, followed by seed coat and endosperm. The ethanolic leaf extract also showed good antifungal activity (12). Aqueous extract of *M. peregrina* seeds was investigated for antibacterial activity against clinically isolated multidrug resistant Salmonella species. The results showed that the extracts exhibited good antibacterial activity against the multidrug resistant Salmonella isolates (13).

- The anti-spasmodic potential of hydroalcoholic extract from the leaves and seeds of *M. peregrina* was studied by ileum contractions induced by 80mM KCl, 250µM of acetylcholine (ACh) and electrical field stimulation (EFS). Both the extracts have an inhibitory potential on ileum contractions. The seeds extract of *M. peregrina* had more potential inhibitory effect of ileum contraction (14).
- Ethanol and aqueous extracts of *M. peregrina* were studied for anti-inflammatory potential using fresh egg albumin induced inflammation (oedema) in rats. The results revealed that the aqueous and ethanol extracts significantly reduced the acute inflammation induced by fresh egg albumin. At a dose level of 300 mg/kg, aqueous and ethanol extracts reduced the inflammation by 72.96 and 81.01%, respectively at the third hour after the oedema was induced. Whereas, the control drug diclofenac at the dose level of 100 mg/kg reduced the inflammation by 100% at the third hour (15).
- The neuroprotective effect of aqueous extract from the leaves of *M. peregrina* was investigated and reported by studying the learning capacity and memory in mice. Based on the results, it was concluded that the aqueous extract of *M. peregrina* enhanced the memory function of scopolamine induced amnesia in mice (16).
- Various extracts of *M. peregrina* were studied for their antioxidant potential. The results showed that *M. peregrina* extracts exhibited antioxidant activity in all tests and the extracts could be considered as a source of natural antioxidants (15, 17-19).

16. Additional information:

The seeds contained 24.1% crude protein, 53.5% fat, 2.6% ash and 2.4% moisture. The mineral analysis indicated high potassium (630.2 mg/100 g) and phosphorus (620.5 mg/100 g) content. Moringa protein was rich in arginine (15.3%), leucine (9%), glycine (8.4%) and proline (8.2%), while essential amino acids comprised approximately 56% of the moringa protein. The seeds oil was found to contain high level of unsaturated fatty acids (83.5%) and in particular oleic acid (74.8%). palmitic (8.9%), stearic (3.1%) and behenic (2.6%) acids were found to be the predominant saturated fatty acids. The seeds oil was also found to contain high levels of β-sitosterol (28.3%), stigmasterol (24.54%), campesterol (23.7%) and Δ-5-avenasterol (16.1%) (5).

17. Date of compilation/last revision

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